

United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE

Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008



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Sent Electronically

Memorandum

To: Regional Endangered Species Program Manager
Sacramento, California

From: Field Supervisor, Carlsbad Fish and Wildlife Office
Carlsbad, California

Subject: Intra-Service Formal Section 7 Consultation for the Issuance of an Amendment to the County of San Diego's Endangered Species Act Section 10(a)(1)(B) Permit (PRT-840414) for the Multiple Species Conservation Program, San Diego Subarea Plan to address the Otay Ranch Village 14 and Planning Areas 16 and 19, San Diego County, California

This document transmits the U. S. Fish and Wildlife Service's (Service) biological opinion (Opinion) in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*), regarding the issuance of an amendment to the incidental take permit (ITP) for the Multiple Species Conservation Program (MSCP) County of San Diego (County) Subarea Plan (Subarea Plan) for Otay Ranch Village 14 and Planning Areas 16 and 19 (Project) pursuant to section 10(a)(1)(B) of the Act. The Service issued the Section 10(a)(1)(B) permit (PRT-840414) to the County for their Subarea Plan on March 17, 1998. The permit duration is for 50 years. The County is requesting the Amendment to change the footprint of the Project, as well as add incidental take coverage for the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) and San Diego fairy shrimp (*Branchinecta sandiegonensis*; SDFS).

The MSCP is a comprehensive, 50-year habitat conservation plan program that addresses urban development and the needs of 85 covered species and the preservation of natural vegetation communities within a 582,243-acre planning area in southwest San Diego County (City of San Diego 1998). The overall goal of the MSCP is to maintain and enhance biological diversity in the region and conserve viable populations of endangered, threatened, and key sensitive species and their habitats, thereby preventing local extirpation and ultimate extinction. The Plan Area for the County's Subarea Plan encompasses 252,132 acres of unincorporated County lands (County of San Diego 1998). The Project Area associated with this Amendment encompasses 1,543 acres, predominately within the County's Subarea Plan; however, there are offsite improvements within both the City of Chula Vista and the City of San Diego Subarea Plans. The effects of implementing the MSCP Subregional Plan and the City of San Diego Subarea Plan were analyzed in a biological and conference opinion (1-6-FW-47; Service 1997; MSCP BO) dated

June 6, 1997. The conference opinion was confirmed in a memorandum dated December 21, 2000. The County's Subarea Plan implements the MSCP Subregional Plan within the unincorporated County lands. Implementation of the County's Subarea Plan was more specifically addressed in 1998 when the Service processed the County's ITP and completed the associated biological opinion (1-6-98-FW-03; Service 1998a; County BO) dated March 12, 1998. The City of Chula Vista Subarea Plan and associated biological opinion were completed in 2003 (FWS-SDG-882.1; Service 2003a; Chula Vista BO), and the City of San Diego Vernal Pool Habitat Conservation Plan and associated biological opinion were completed in 2018 (10B0010-18F285; Service 2018). All of these BOs are incorporated by reference.

These BOs addressed 85 covered species. Of these 85 species, only 15 were observed or have the potential to occur within the Project footprint, including areas that are the subject of this Amendment. Our Opinion will address these 15 species, which include 2 federally listed animal species, 1 listed plant species, and 12 unlisted species (2 plants and 10 animals). These species include San Diego goldenstar (*Bloomeria clevelandii*), Otay tarplant (*Deinandra conjugens*), San Diego barrel cactus (*Ferocactus viridescens*), SDFS, orange-throated whiptail (*Aspidoscelis hyperythra*), coast horned lizard (*Phrynosoma blainvillii*), Cooper's hawk (*Accipiter cooperii*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), golden eagle (*Aquila chrysaetos*), western burrowing owl (*Athene cunicularia hypugaea*; burrowing owl), coastal California gnatcatcher (*Polioptila californica californica*; gnatcatcher), western bluebird (*Sialia mexicana*), southern mule deer (*Odocoileus hemionus fuliginata*), mountain lion (*Puma concolor*), and American badger (*Taxidea taxus*). In addition to these 15 species, this biological opinion will also address the federally endangered QCB. With the exception of SDFS and QCB, most of the impacts to plants and/or take of animals associated with implementation of the overall Project have already been addressed through the above-mentioned biological opinions, and we do not expect any effects that were not previously evaluated and anticipated. Although there are impacts proposed to areas where take was not previously authorized, this is offset by the conservation of new areas that were previously authorized for take; therefore the Project will result in a net benefit to the covered species. Nonetheless, because of the length of time since we issued the permits for the jurisdictions' MSCP Subarea Plans, we will include all covered species with the potential to occur in the Project footprint in this consultation to provide updated information on their status, environmental baseline, and effects of the action.

Other MSCP covered species that occur within the Project Area, but will not be impacted by the Project and the Amendment, include Otay manzanita (*Arctostaphylos otayensis*), Orcutt's brodiaea (*Brodiaea orcuttii*), Dunn's mariposa lily (*Calochortus dunnii*), San Miguel savory [*Clinopodium* (= *Satureja*) *chandleri*], variegated dudleya (*Dudleya variegata*), Gander's pitcher sage (*Lepechinia ganderi*), and northern harrier (*Circus cyaneus*). There are no known occurrences of these species within the Project footprint. These species were all observed in areas proposed to be conserved either within the Otay Ranch Resource Management Plan (RMP) Preserve and/or Conserved Open Space, predominately within Planning Area 16. The consolidation of development in Village 14 and the removal of development associated with this Amendment in Planning Area 16 will benefit these species by minimizing fragmentation and edge effect. Therefore, these species will only experience positive effects from this action and will not be addressed in this opinion.

This Opinion also addresses designated critical habitat for QCB, Otay tarplant, spreading navarretia (*Navarretia fossalis*)¹, and the coastal California gnatcatcher. Critical habitat for these species was designated after the issuance of the County's ITP, therefore it was not addressed in the MSCP or County BOs. Although critical habitat has been designated for SDFS, there is no designated critical habitat within the Project Area; therefore, it will not be addressed further in this consultation.

CONSULTATION HISTORY

On June 26, 2019, the County Board of Supervisors approved the Otay Ranch Village 14 and Planning Areas 16/19 Project and associated land use entitlements (the 2019 Land Plan) proposed by GDCI Proctor Valley, L.P., a limited partnership (GDCI: Project proponent). The 2019 Land Plan includes proposed development in areas not authorized for take under the Subarea Plan ITP (i.e., PV1, PV2, and PV3).² On July 3, 2019, GDCI, the Service, the California Department of Fish and Wildlife (Department), and the County executed a Dispute Resolution Agreement (DRA) to resolve their disputes regarding proposed development on areas identified as "Otay Ranch Areas Where No 'Take Permits' Will Be Issued" (see Figure 1-3 in the Subarea Plan). The DRA outlines the steps needed to approve an alternative Project footprint that consolidates development within Village 14 and reduces edge effects onto adjacent conserved lands. To implement this alternative footprint, a land disposal/exchange and an amendment to the MSCP County Subarea Plan and associated ITP are needed.

The Service worked with the County, the Department, and GDCI during the first half of 2019 to process the land disposal/exchange and to prepare the Amendment to the County's Subarea Plan consistent with the intent of the DRA. Although the disposal/exchange and MSCP County Subarea Plan Amendment are proceeding in parallel, the respective decisions (approval letter and ITP) will be made sequentially. The Service's decision on the land disposal/exchange will be made first followed by the decision on the Amendment. Neither action will occur without the other; however, since there are no effects to listed species associated solely with the land disposal/exchange, it is not included in this consultation. The County Board of Supervisors approved the Amendment on June 3, 2020. The Service published a Notice of Availability in the Federal Register on July 23, 2020 for the Amendment and completed a draft Environmental Assessment (EA) dated July 17, 2020.

¹ There are no known occurrences of spreading navarretia within the Project area therefore, although critical habitat is addressed, this species is not.

² PV1, PV2, and PV3 refer to parcels of land within Proctor Valley that were identified initially in the November 10, 1995, letter from the Baldwin Company to the Wildlife Agencies that is included in the County's Subarea Plan at the end of Chapter 3.

DECISIONAL RECORD

This biological opinion was prepared using the following information that is hereby incorporated by reference:

1. The MSCP Subregional Plan, County Subarea Plan, and Otay Ranch Proctor Valley Amendment dated May 2020;
2. The decision documents completed for issuance of incidental take permit (PRT-840414);
3. Additional information on Project impacts and conservation provided by the County and their consultants;
4. The Service's proposed Permit terms and conditions dated November 16, 2020;
5. Available scientific literature and interviews with species and area experts; and
6. Other information in Service files.

The project file addressing this consultation is located at the Carlsbad Fish and Wildlife Service Office (CFWO).

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed Federal action is the issuance of an amendment to County's ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County Subarea Plan. The MSCP County Subarea Plan consists of three segments, one of which is the South County Segment. The South County Segment includes Otay Ranch as a Covered Project. The Otay Ranch General Development Plan/Otay Subregional Plan (GDP/SRP) designates parcels for development and open space, including parcels that are part of the Project (City of Chula Vista and County of San Diego 1993). The Otay Ranch RMP is a component of the Otay Ranch GDP/SRP and establishes the mechanism by which property owners are to mitigate impacts related to Otay Ranch implementation, including biological impacts (City of Chula Vista and County of San Diego 2015). The Otay Ranch RMP Preserve is a hardline preserve system included in the MSCP Subregional Preserve and includes land reserved for mitigation for impacts to sensitive resources as a result of Otay Ranch development. The documents and their associated requirements were incorporated into MSCP by reference (see page 3-16 of the County's Subarea Plan). Otay Ranch includes a series of 14 villages and five planning areas within a matrix of conserved land on 23,000 acres within the Subarea Plan area. The Amendment addresses proposed changes to the County's Subarea Plan for one of these villages (Village 14) and two of the planning areas (Planning Areas 16 and 19) (collectively referred to as the Project), as depicted in the DRA and

reflected in Figure 1. The proposed MSCP County Subarea Plan Amendment would accomplish the following:

1. Designate approximately 531.2 acres as “Hardline Preserve,” which is the property identified as PV1, PV3 (excluding that portion identified as water basin and Proctor Valley Road right-of-way), R14, R15, and R16 (Figure 2);
2. Authorize take of covered species and reclassify approximately 44.5 acres of the MSCP County Subarea Plan from “Otay Ranch Areas Where No ‘Take Permits’ Will Be Issued” to “Take Authorized” to allow for future development, which is the property known as PV2 (38.4 acres) and that portion of PV3 (6.1 acres) where a water basin will be constructed and where the Proctor Valley Road right-of-way will be located (Figure 1);
3. Authorize take of covered species for approximately 2.2 acres for public facilities (a water transmission line/secondary access road known as Street I) located in “Hardline Preserve”; and
4. Authorize take of QCB and SDFS within the 1,543-acre Project Area and for mitigation and monitoring efforts on adjacent lands.

The County proposes to extend take authorization to GDCI as a Third-Party Beneficiary for the duration of the existing Subarea Plan ITP (which is in effect until March 17, 2048). It is anticipated that all direct physical impacts to habitat and resulting incidental take shall have occurred within this timeframe. All other provisions of the MSCP and the County’s MSCP Subarea Plan remain in effect. Impacts associated with the incidental take authorized by this Amendment to the MSCP County Subarea Plan must comply with the mitigation requirements of the MSCP and the MSCP County Subarea Plan (including the Otay Ranch RMP). Mitigation measures required for the Project are summarized in Section 6.2 of the Amendment.

QCB was not covered under MSCP or the Subarea Plan; therefore, the Amendment includes a Conservation Strategy and Framework Management Plan (Helix and Dudek 2020) for QCB within the Project Area. This plan includes goals and objectives for conserving QCB within the Project Area as well as mitigation, monitoring and an adaptive management strategy. Although SDFS was initially covered under the MSCP and the Subarea Plan, no take was authorized; therefore, the Amendment addresses anticipated take of SDFS and includes mitigation measures to offset these impacts.

Action Area

Regulations implementing the Act [50 Code of Federal Regulations (CFR) § 402.02] describe the action area as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. We are defining the action area as the 1,543-acre Project Area, which includes 1,283.6 acres currently owned by the GDCI, 219.4 acres currently owned by the Department, and approximately 40.1 acres of off-site improvements and the adjacent Preserve lands within Proctor Valley in the County of San Diego, California.

ANALYTICAL FRAMEWORK FOR THE SECTION 7(A)(2) DETERMINATIONS

Jeopardy Determination

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. “Jeopardize the continued existence of” means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which describes the range-wide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the Environmental Baseline, which analyzes the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the Effects of the Action, which are all consequences to listed species caused by the proposed action that are reasonably certain to occur; and (4) the Cumulative Effects, which evaluate the effects of future, non-Federal activities in the action area on the species.

For the section 7(a)(2) determination regarding jeopardizing the continued existence of the species, the Service begins by evaluating the effects of the proposed Federal action and the cumulative effects. The Service then examines those effects against the current status of the species to determine if implementation of the proposed action is likely to reduce appreciably the likelihood of both the survival and recovery of the species in the wild.

Adverse Modification Determination

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to destroy or adversely modify designated critical habitat. “Destruction or adverse modification” of critical habitat means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species (50 CFR § 402.02).

The adverse modification analysis in this biological opinion relies on four components: (1) the status of critical habitat, which describes the condition of all designated critical habitat in terms of its physical and biological features, the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the environmental baseline, which analyzes the condition of the designated critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the effects of the action, which analyze all consequences to critical habitat caused by the proposed action that are reasonably certain to occur and their influence on the recovery role of the affected designated critical habitat units; and (4) cumulative effects, which evaluate the effects of future non-Federal activities in the action area on the physical and biological features of critical habitat and how that will influence the recovery role of affected critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed Federal action on the designated critical habitat are evaluated in the context of the condition of all designated critical habitat, taking into account any cumulative effects, to determine if the consequences of the proposed action are likely to appreciably reduce the value of critical habitat as a whole for the conservation of the species.

STATUS OF THE SPECIES AND CRITICAL HABITAT³

The MSCP BO (Service 1997) includes a discussion of the major vegetation communities (habitats) within the Subregion and describes the covered species in relation to these major vegetation communities. That discussion is hereby incorporated by reference.

The designation of critical habitat for Otay tarplant, spreading navarretia, QCB, and coastal California gnatcatcher use the term primary constituent element (PCE) or essential feature. The revised critical habitat regulations (81 FR 7214) replace this term with physical or biological feature (PBF). The shift in terminology does not change the approach used in conducting an impact analysis, which is the same regardless of whether the original designation identified PCE, PBF, or essential feature. In this biological opinion, we use the term PBF.

The species addressed in this Opinion are individually described in detail in the Species-Specific Evaluations section, below.

ENVIRONMENTAL BASELINE

The regulations implementing the Act define the environmental baseline as the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR § 402.02).

Environmental Baseline, General

The MSCP County Subarea Plan will assemble a 98,379-acre Preserve for the benefit of rare and endangered plants and animals and their habitats of which over half (48,240 acres) is located in the South Segment. The Project is located within the South Segment. The Otay Ranch RMP Preserve is a significant component of the City of Chula Vista's and County's overall MSCP

³ Because of the large number of species included in this Opinion, we have modified the organization from the recommended format in our "Endangered Species Consultation Handbook." Each component of the formal consultation is discussed in general terms first (and includes the recommended standard paragraphs), and is then included for each species, as appropriate, in the Species-Specific Evaluations section.

Preserve and will contribute ~11,375 acres⁴ at build out. As of December 31, 2019, a total of 79,188 acres had been added to the County's MSCP Subarea Plan Preserve, which is 80 percent of the overall 98,379-acre conservation target.

The Project Area is within the Proctor Valley Parcel of the Otay Ranch GDP/SRP planning area. The Proctor Valley Parcel is approximately 7,895 acres, and includes the development footprints for Villages 13 and 14 and Planning Areas 16 and 19. Portions (including both development and Preserve lands) of Village 14 and Planning Area 16 were purchased by the Service, Otay Water District, and the Department. The remaining areas are in private ownership and subject to the requirements of the Otay Ranch GDP/SRP. As noted above, to facilitate this Amendment, a land disposal/exchange will be completed that consolidates the respective ownerships of GDCI and the Department (Figure 2). This will facilitate development of Village 14 and Planning Area 19 and the conservation of Planning Area 16.

The total Project Area includes 1,543 acres, of which all are subject to the Amendment as it relates to QCB and SDFS, and of which 577.9 acres are subject to the Amendment as it relates to the other covered species. Of the 577.9 acres, 46.7 will be designated "Take Authorized" and 531.2 will be designated "Hardline Preserve." The "Hardline Preserve" includes the 339 acres that were given to the State as part of the land disposal/exchange as well as 192 acres within R14 (Figure 2). The Project development footprint, including the Amendment area, is approximately 570.3 acres (designated as "Take Authorized"), and consists of approximately 504.8 acres within Otay Ranch Village 14, 25.2 acres within Otay Ranch Planning Areas 16/19, and 40.1 acres of off-site improvements (i.e., Proctor Valley Road). The remainder of the Project Area will be conserved either as Conserved Open Space (24.5 acres) or Otay Ranch RMP Preserve (435.3 acres).⁵ The acreages do not add up exactly as there are some impacts in the RMP Preserve (see Table 1). Of the 1,266 residential units, 1,253 units will be located in Village 14 (consistent with the Otay Ranch GDP/SRP), and 13 units will be located in Planning Area 19 (consistent with the Otay Ranch GDP/SRP) (Figure 3).

The Project Area is surrounded by MSCP Preserve lands that are owned by the Service, the Department, the City of San Diego, the Bureau of Land Management (BLM), and the Otay Ranch Preserve Owner/Manager (Otay Ranch POM)⁶ (Figure 4). These conserved areas include baseline conservation areas (BLM), areas that have been conserved through mitigation (Otay Ranch POM), and acquisition (Service and Department). Additional areas (e.g., Hidden Valley Estates) have been acquired, above what was anticipated to be conserved under the MSCP,

⁴ This acreage does not reflect changes referenced in the Baldwin Agreement or open space associated with the Limited Development Areas.

⁵ The access road acreage (2.2 acres) is included in this total.

⁶ On March 6, 1996, the San Diego County Board of Supervisors authorized the formation of a Preserve Owner/Manager (made up of the District 1 Supervisor and the Mayor of Chula Vista) through the execution of a Joint Powers Agreement between the City of Chula Vista and the County. The POM is responsible for management of resources, restoration of habitat and enforcement of open space restrictions for the Otay Ranch Preserve once the Preserve is formally established and title to the land conveyed to the POM.

through acquisition by the Service and the Department. The Department will own an additional 120.1 acres after the disposal/exchange is complete.

Table 1. Summary of proposed land use designation within Project Area.

Land Use	Acreage
Onsite Development	512.1
RMP Preserve allowable uses	18.1 (8.1 permanent and 10 temporary)
Offsite improvements	40.1
<i>Impact Subtotal</i>	570.3
Onsite RMP Preserve	377
Onsite RMP Preserve impacts for allowable uses	(18.1, 10 of which are temporary impacts and will be restored)
Offsite Preserve PA16	58.3
<i>Preserve Subtotal¹</i>	435.3
Conserved Open Space	24.5
R14	191.5
Exchanged to the Department	339.7
<i>Total</i>	1,543.2

¹ This total does not include the RMP Preserve impacts.

The Project is located in Proctor Valley, a south-sloping valley that is traversed by Proctor Valley Road and the northeasterly ridges of the Jamul Mountains, which is adjacent to the community of Jamul. The Project Area is undeveloped with the exception of the existing, unimproved Proctor Valley Road. The topography of Proctor Valley generally consists of broad, gentle hillsides. Several small, narrow ephemeral drainages are present along the eastern edge of the valley. Proctor Valley continues north of the Jamul Mountains as a broad, even meadow with rolling hillsides.

The Project Area, including the areas subject to the Amendment, is dominated by chaparral and sage scrub. Various wetland plant communities also occur in the Project Area. The Project Area supports habitat for common upland and riparian wildlife species. Chaparral, coastal scrub, woodland, riparian, and non-native habitats (e.g., eucalyptus and non-native grassland) provide foraging and nesting habitat for migratory and resident bird species and other wildlife. Rock outcroppings, chaparral, coastal scrub, and woodlands also provide cover and foraging opportunities for wildlife species, including reptiles and mammals.

In 2012, the Service, the Department, and the San Diego Management and Monitoring Program (SDMMP) completed an evaluation of the current status of each of the covered species relative to the conditions for coverage found in Table 3-5 in the MSCP (Service *et al.* 2012). The species points from the databases used to develop the MSCP were plotted on the habitat gains reported in HabiTrak⁷ and the Conserved Lands [San Diego Association of Governments (SANDAG)] geographic information system (GIS) coverages to assess the level of conservation that has occurred, to date, for each of the covered species. Conservation, in this context, refers to whether the species locations have been included in HabiTrak as a gain or are owned and managed by a public entity for their biological resources. New data points that have been collected since the final MSCP were also included, where relevant.

Since that time, additional lands have been conserved, and SDMMP has developed a Management Strategic Plan (MSP) that provides goals, objectives, and actions for species, vegetation communities, and threats/stressors. The MSCP covered species are all included in the MSP. With regards to rare plants, the MSP includes an objective to document the status of rare plant occurrences and assess habitats and threats to develop specific management recommendations. Monitoring is implemented by a combination of land managers and contracted biologists in coordination with the SDMMP, and data has been collected since 2014 for 30 species, including the species addressed in this consultation. The methods used to collect the data and the data itself are available on the [SDMMP website](#). These data are used in the environmental baseline sections for plants in the Species-Specific Evaluations section below.

Previous consultations within the action area include the biological opinions referenced above that were completed for each of the MSCP permits that have been issued (i.e., MSCP BO; County BO; and Chula Vista BO). These consultations addressed the effects of the Project as originally proposed in the Subarea Plan, which is reflected in both the general and species-specific environmental baseline sections. As stated earlier, with the exception of SDFS and QCB, most of the impacts to plants and/or take of animals associated with implementation of the overall Project have already been addressed through these biological opinions, and we do not expect any adverse effects that were not previously evaluated and anticipated.

In addition, we completed two consultations that addressed vernal pool species (including SDFS): one for the City of San Diego Vernal Pool Habitat Conservation Plan (10B0010-18F1285; HCP) and one for a restoration project (16B0328-16F0817) on the City of San Diego Cornerstone lands. Both of these consultations resulted in conservation of vernal pools on the City of San Diego Cornerstone lands.

The environmental baseline for each covered species and critical habitat in the Action Area is addressed more specifically below in the Species-Specific Evaluations section.

⁷ HabiTrak is a set of tools developed cooperatively by the wildlife, local jurisdictions, special districts, and the SANDAG to meet the annual habitat tracking and reporting requirements of the regional plans. The reports are used to gauge how individual habitat conservation plans are being implemented and if the conservation goals are being achieved.

EFFECTS OF THE ACTION

Regulations implementing the Act define the effects of the action as all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action (50 CFR § 402.02). A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR § 402.17).

The regulations for section 7(a)(2) note that “a conclusion of reasonably certain to occur must be based on clear and substantial information, using the best scientific and commercial data available” [50 CFR § 402.17(a)]. When considering whether activities caused by the proposed action (but not part of the proposed action) or activities reviewed under cumulative effects are reasonably certain to occur, we consider factors such as (1) past experiences with activities that have resulted from actions that are similar in scope, nature, and magnitude to the proposed action; (2) existing plans for the activity; and (3) any remaining economic, administrative, and legal requirements necessary for the activity to go forward.

When considering whether a consequence to the species or critical habitat is not caused by the proposed action, we consider factors such as (1) the consequence is so remote in time from the action under consultation that it is not reasonably certain to occur; (2) the consequence is so geographically remote from the immediate area involved in the action that it is not reasonably certain to occur; or (3) the consequence is only reached through a lengthy causal chain that involves so many steps as to make the consequence not reasonably certain to occur [50 CFR § 402.17(b)].

General Direct Effects

The overall effects of the Project are included here to provide context for the Amendment; however, it should be noted that with the exception of the 46.7 acres of new impacts, the impacts were already addressed under the MSCP and County BOs. The proposed Project would permanently affect 537.2 acres, including 511.2 acres of upland habitat and 1.2 acres of wetland habitat. This includes the 44.5 acres (38.4 acres of PV2 and 6.1 acres of PV3) included in the Amendment as “Take Authorized” and 2.2 acres for the development of a secondary access road in Village 14. The access road is required for the Otay Water District water transmission line and access to the 980-Zone regional water reservoir facility, and also provides secondary fire access for Village 14. Table 2 quantifies permanent and temporary impacts by vegetation community. Table 3 summarizes the impacts and conservation to covered species from the Project.

Table 2. Vegetation Communities Impacted by the Proposed Project (in acres).

Vegetation Community	Permanent Amendment Impacts	Permanent Total Project Impacts	Temporary Total Project Impacts
Granitic chamise chaparral	1.1	352.4	3.5
Granitic southern mixed chaparral		1.7	1.5
Diegan coastal sage scrub	37.8	96.7	10.8
Diegan coastal sage scrub (disturbed)	5.2	14.3	9.7
Diegan coast sage scrub - Baccharis		0.4	0.9
Non-native grassland	0.8	45.7	11.2
Disturbed/Developed	1.7		
Subtotal of Upland	46.7	511.2	27.5
Cismontane alkali marsh		0.8	0.1
Mulefat scrub		0.1	0.3
Freshwater marsh		0.1	0.3
Southern willow scrub		0.1	<0.1
Unvegetated channel		<0.1	0.1
Subtotal of Wetland		1.2	0.7

Table 3. Acres of modeled habitat for wildlife covered species to be impacted and conserved by the Project.

Species	Development Footprint (Total Impact)	Otay Ranch RMP Preserve	Amendment Impact ¹ (included in total)	Amendment Conservation ²	Net Gain ³
San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>)	0.197 basin area	0.07	0	0	0.1 ⁴
Quino checkerspot butterfly (<i>Euphydryas editha quino</i>)	527.1 habitat 4.21 host plant	411.9 habitat 1.32 host plant	51.4 habitat 0.01 host plant	191.5 habitat 0.53 host plant	N/A ⁵
orange-throated whiptail (<i>Aspidoscelis hyperythra</i>)	478.9	387.8	45.7	163	117.3
Coast horned lizard (<i>Phrynosoma blainvillii</i>)	525.6	420.1	46.5	191.2	144.7
Cooper's hawk (<i>Accipiter cooperii</i>) (nesting)	3.0 nesting 511.9 foraging	3.4 nesting 423 foraging	45 foraging	0 nesting 187.4 foraging	142.4
Southern California rufous-crowned sparrow (<i>Aimophila ruficeps canescens</i>)	508.0	412.8	45	187.2	142.4
golden eagle (<i>Aquila chrysaetos</i>) (nesting and wintering)	507.9 foraging	412.1 foraging	45 foraging	187.2 foraging	187.2

Species	Development Footprint (Total Impact)	Otay Ranch RMP Preserve	Amendment Impact ¹ (included in total)	Amendment Conservation ²	Net Gain ³
Western burrowing owl (<i>Athene cunicularia hypugaea</i>) (burrow sites and some wintering sites)	71.8 survey habitat	29.6 survey habitat	0	0 survey habitat	0
coastal California gnatcatcher (<i>Poliophtila californica californica</i>)	461.3	380.5	44.2	158.9	114.8
western bluebird (<i>Sialia mexicana</i>)	169.7	307.8	46.5	191.2	144.7
American badger (<i>Taxidea taxus</i>)	522.6	360.6	46.5	191.2	144.7
Southern mule deer (<i>Odocoileus hemionus</i>)	533.4	427.3	46.6	191.4	144.9
mountain lion (<i>Puma concolor</i>)	525.6	420.1	46.5	191.2	144.7

¹ Modeled habitat to be impacted within PV2, PV3, and the access road (i.e., new take).

² Modeled habitat to be conserved within R14 (i.e. new conservation).

³ Net gain reflects the difference between the new conservation and the new take.

⁴ Represents the increased acreage from restoration and enhancement.

⁵ QCB was not a covered species in MSCP therefore there this column is not applicable (N/A).

General Indirect Effects

Indirect effects from the proposed Amendment may include fragmentation, edge effects, noise effects, disruption of the natural fire regime, changes in hydrology, and run off from adjacent development. They may occur in the short-term during construction, or over time due to the location of urban development in proximity to the Preserve.

Fragmentation of habitat can have negative effects on the population dynamics of many species. Habitat fragments have lesser conservation value than large habitat blocks because smaller habitat areas contain fewer species, have proportionally larger perimeters (making them more vulnerable to edge effects), are biologically isolated from other habitat areas, and are more vulnerable to adverse stochastic events. Smaller reserves are faced with an increased likelihood of extinction of some species because of reduced population sizes and diminished dispersal ability. The Project consolidates development into Village 14 and open space in Planning Area 16, which reduces the fragmentation of the Preserve within Proctor Valley from what was originally approved in the Subarea Plan. The development proposed within PV2 is contiguous with the original hardline development footprint for Village 14. Similarly, the access road was re-designed to be located along the edge of the Village 14 development footprint. Therefore, impacts within PV2 will not increase habitat fragmentation beyond what was already anticipated under the MSCP and County BOs. The “Take Authorized” area proposed within PV3 is located within the Preserve and could slightly increase fragmentation of habitat for covered species; however increases in habitat fragmentation should be minimal since the proposed land use is a

detention basin, which will remove habitat but will not result in many of the edge effects typically associated with development (e.g., increased noise, lighting, unauthorized use by people, increased use by domestic cats). The main source of fragmentation in the vicinity of the detention basin is from the improvements to Proctor Valley Road, which were anticipated and included in the original MSCP and Subarea Plan.

The effects of habitat fragmentation can be minimized by maintaining linkages. Linkages are habitat connections between larger preserve areas which allow for wildlife movement, recruitment, and colonization between different core biological areas. Linkages are important for allowing wildlife and certain plants to move from their natal areas to sites where they may reproduce. Linkage habitat provides for movement between core population areas, therefore preventing genetic isolation and allowing for recruitment into areas where populations have been extirpated due to fire or other environmental factors. When large blocks of habitat remain intact, the rate of successful dispersal between core population areas is higher. At a minimum, dispersal habitat within linkages should provide some level of foraging and limited protection from predators. When the distance between core populations of a species is greater than the dispersal distance for individuals, effective linkages must provide live in habitat. Linkages are critical to the functioning of the Preserve system. None of the new proposed “Take Authorized” areas (PV2, the detention basin in PV3 and the access road) are located within the identified linkage areas. The Project maintains and enhances the linkages (R1, L3, and L4) identified in the MSCP and the Subarea Plan. Wildlife crossings are included as part of the Project to allow animals to move across Proctor Valley Road. The wildlife crossing at the Proctor Valley drainage will allow for unimpeded wildlife movement throughout the area and expands the openness ratio $[(\text{height} \times \text{width})/\text{length}]$ to 9.5 meters at its highest point. The specific areas included in the Amendment will not impact the identified linkages as they are located adjacent to the existing approved development footprint.

Another negative effect of fragmentation is exposure to incompatible land uses along the habitat edge (edge effects). The biological integrity of habitats adjoining development can be diminished by adverse effects of noise, lighting, exotic plant and animal invasion, dust/air pollution, predators, parasites, disturbance from human activities, pesticides, fuel modification, and other factors. Short-term indirect impacts will be minimized through the implementation of best management practices required by the County (see mitigation measures M-BI-1, 2, 14, 15, and 18).⁸ Grading would be subject to restrictions and requirements that address erosion and runoff, including preparation of a Storm Water Pollution Protection Plan (SWPPP) and Standard Urban Stormwater Management Plan. The County’s Subarea Plan (see Section 1.10, Land Uses Adjacent to the Preserve; Section 1.11, Fuel Modification Zones; Section 3.0 South County Segment; and Section 3.4, Land Uses Adjacent to the Preserve), and the Otay Ranch GDP/SRP (see Chapter 10, Section B. 7. Resource Preserve – Adjacent Land Uses) include measures to minimize edge effects in their preserve design. Otay Ranch RMP requires the preparation of a “Preserve Edge Plan” which was prepared for the Project (Specific Plan Amendment – Appendix 1; RH Consulting

⁸ Section 6.2 of the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan lists the mitigation measures that are required by the County for the Project. These are the same measures that were included in the Addendum to the EIR for the Project (County of San Diego 2020). Please refer to these documents for the complete text of each measure.

Group, LLC *et al.* 2020). It includes measures that address access control (mitigation measure M-BI-2 and M-BI-5), prevention of invasive plant species (mitigation measure M-BI-16), chemical pollutants (mitigation measure M-BI-17), noise (mitigation measure M-BI-18), and lighting (mitigation measure M-BI-20).

Additionally, alteration of the natural fire regime could lead to an elimination of fire in small habitat fragments adjacent to development or to an increase in fire frequency from anthropogenic ignition. Repetitive fire may cause type conversion of vegetation communities away from more perennial systems (e.g., shrublands) into more annual systems (e.g., non-native grasslands). Policies related to fire management are included in the MSCP, the County's Subarea Plan and the Otay Ranch RMP Plan. The Project includes a Fire Protection Plan that will be implemented to minimize potential exposure of the Project Area to fire hazards.

Adjacent land use may introduce noise, which may affect covered species within the Preserve. This is especially true during construction. The impact of noise on wildlife is likely to differ from species to species and is not only dependent on the source of the noise (e.g., aircraft vs. blasting), but also on the duration and schedule. For example, noise may alter time-consuming and energetically expensive behaviors (e.g., calling, singing, attack) of birds. Therefore, increased noise levels have the potential to lower reproductive fitness by affecting territorial defense, mate acquisition, the ability to detect conspecific encroachments, foraging (Atkinson 1997), and predator avoidance (Scherzinger 1979). The Preserve Edge Plan includes measures to minimize indirect noise impact by constructing berms or walls adjacent to commercial areas and any other uses, such as community parks, that may introduce noises that could impact or interfere with wildlife use of the Otay Ranch RMP Preserve. Construction-related activities that are excessively noisy (e.g., clearing, grading, grubbing, or blasting) adjacent to breeding/nesting areas shall incorporate noise-reduction measures or be curtailed during the breeding/nesting season of sensitive bird species (See Mitigation Measure BI-18). A County approved biologist will conduct preconstruction surveys in suitable nesting habitat adjacent to the construction area to determine the location of any active nests in the area. If nesting birds are detected by the biologist, the following buffers will be established: (1) no work within 50 feet of a non-listed and non-raptor avifauna nest; (2) no work within 300 feet of a federally or state-listed species, such as coastal California gnatcatcher; and (3) no work within 500 feet of a raptor nest. The buffer shall be flagged in the field and mapped on the construction plans. These buffers should minimize the disturbance at the nest site and minimize the chances of the birds abandoning the nest.

Climate Change

Global climate change is an ongoing threat to all of the covered species and is well documented (IPCC 2007). Current climate change predictions for terrestrial areas in the Northern Hemisphere indicate warmer air temperatures, more intense precipitation events, and increased summer continental drying (Field *et al.* 1999; Cayan *et al.* 2005; IPCC 2007). The climate change model simulations indicate that San Diego will retain its strong Mediterranean climate with relatively wet winters and dry summers. Projections of future precipitation have mixed results: three of the simulations become drier (12 percent to 35 percent drier than historical annual average), and three are wetter (12 percent to 17 percent wetter than historical annual average) overall (Messner

et al. 2011). This reflects the reality that precipitation cannot yet be modeled with the same degree of consistency as other climate change parameters. The models vary in their projections of storminess, but none show a significant change from past patterns. One important aspect of all of the climate model projected simulations is that the high degree of variability of annual precipitation that the region has historically experienced will prevail during the next 5 decades. Climate change can also influence fire frequency within the Preserve. Fire occurrence in California has been correlated with drought, moisture availability, and biomass (fuel) accumulation (Lenihan *et al.* 2003). Although climate change models predict different climate scenarios, many predict a dryer and warmer climate, which would result in more frequent or longer drought periods. An increase in drought frequency or longevity has the potential to increase fire frequency. The Amendment includes both drought and increased fire frequency as potential changed circumstances for QCB and SDFS. Conservation measures in the Amendment are not sufficient and comprehensive enough on their own to prevent the effects of climate change on covered species. However, certain risks associated with climate change can be minimized with preventative measures. Preventative measures are provided for fire in Section 7.2.2.1 of the Amendment and in the Otay Ranch RMP. There are no preventative measures identified for drought. For all of the species, the effects of climate change are best addressed through the adaptive management and monitoring of the Preserve. Climate change is not addressed further as a threat for the covered species, except for QCB and SDFS.

General Conservation/Mitigation Measures

Section 6.2 of the Amendment outlines the mitigation measures required by the County to avoid, minimize, and offset direct and indirect impacts to the biological resources including the covered species addressed in this opinion. Direct impacts to species and habitats will be offset through the conveyance of land to the Preserve (mitigation measure M-BI-3). Mitigation for the Project is generally governed by the terms of the Otay Ranch RMP and includes conveyance of Preserve land at a ratio of 1.188, for an estimated total of 556.6 acres;⁹ of which 377 acres would be preserved within the existing Otay Ranch RMP Preserve in Village 14. The remaining Conveyance Obligation would be met through the existing Otay Ranch RMP Preserve in Planning Area 16 (58.3 acres) and the conveyance of 121.3 acres within R14. There will be approximately 70.3 acres of “surplus” land within R14 that will also be conveyed to the POM. Impacts within PV2 and PV3 are subject to the Biological Mitigation Ordinance (BMO) mitigation requirement (11.4 acres) which is anticipated to be satisfied within the areas designated as “Conserved Open Space”. The County has indicated that impacts to City of San Diego Cornerstone Lands require a minimum of an additional 14.5 acres of mitigation, although the location has not been identified. The Cornerstone Lands Mitigation Banking Agreement (Exhibit K to the City’s Implementing Agreement) outlines the process for addressing impacts to Cornerstone Lands and requires approval by the City, the Service, and the Department. Through that process, the final acreage and location of land to offset the impacts to Cornerstone Lands

⁹ The final conveyance acreages will be calculated when the final map is approved, so this number may change slightly.

will be determined. Indirect impacts are offset through the implementation of best management practices that were identified above. Minimization of indirect impacts is described above.

Summary

In summary, the overall Project development footprint is smaller than what was approved under MSCP and would result in a superior preserve design due to the consolidation of development in Village 14 and the removal of development in Planning Area 16. The overall MSCP Preserve will be increased by 192 acres due to the addition of R14 and the wildlife corridors will be expanded through the site with the elimination of development within Planning Area 16. It also will result in a reduction in edge effects of approximately 8.7 miles compared to the 1997 MSCP hardline “Take Authorized” edge. The Project also includes the establishment of a Community Finance District (CFD) which will provide permanent funding for long-term management and monitoring. Therefore, we conclude that:

1. The avoidance, minimization, and/or mitigation measures included in the County’s Subarea Plan, as proposed to be amended (which incorporates the MSCP Subregional Plan, where appropriate), will reduce the impacts to the covered species.
2. Impacts to the 38.4-acre PV2 and the 6.1-acre portion of PV3 (both originally designated as “No Take Authorized” areas)¹⁰ and the 2.2-acre access road will be offset through the addition of 192 acres within R14 to the overall Preserve.
3. The covered species will benefit from the system of large, interconnected blocks of habitat that the County’s Subarea Plan, as proposed to be amended, in conjunction with the MSCP Subregional Plan, will establish and preserve in perpetuity.
4. The Preserve will be adaptively managed, per the measures included in the County’s Subarea Plan, as proposed to be amended, and MSCP Subregional Plan, which will further reduce the indirect effects and benefit the covered species.
5. The Project results in a better preserve design with less edge effect than was analyzed in the MSCP BO and County BO.
6. The Project includes a Preserve Edge Plan which outlines specific measures that will be implemented to protect against detrimental edge effects as required by the “conditions for coverage” in Table 3-5 of the MSCP Subregional Plan.

Species Recovery

The County’s Subarea Plan and the proposed Amendment are consistent with the MSCP Subregional Plan, which was developed to meet the NCCP goals of providing for high likelihood of persistence of target species and providing for no net loss of habitat value from the present.

¹⁰ Figure 1-2 of the County Subarea Plan designates these areas as “No Take Authorized” whereas Figure 1-3 labels them as “Otay Ranch Areas Where No ‘Take Permits’ Will Be Issued”.

The NCCP Conservation Guidelines define no net loss of habitat value as “. . . no net reduction in the ability of the subregion to maintain viable populations of target species over the long-term.” The guidelines clarify that “the goal of no net loss of habitat value may be attainable even if there is a net loss of habitat acreage, provided that the preserve design is adequate and techniques are employed to manage and restore the preserved habitat.” The Subarea Preserve design is consistent with the seven basic tenets of preserve design outlined in the Conservation Guidelines, and Preserve management is being provided through species-specific and site-specific land use and management guidelines to ensure that the Preserve’s biological values are maintained in perpetuity. The permanent protection and management provided under the plan allows for the recovery of covered species by: (1) supporting the persistence of narrowly ranging covered plant and wildlife species within the planning area whose survival is dependent upon persistence in this area; (2) contributing to the long-term habitat viability of vegetation communities for species dependent on these communities; and (3) contributing to the overall conservation of wide-ranging species through the protection of large, interconnected blocks of habitat rather than the small patches that will result from project-by-project mitigation. Although the Amendment provides for additional take within 46.7 acres of the Project Area, it also increases the Preserve by 192 acres. Thus, the net change results in increased conservation over what was initially permitted for the covered species. Considering that coverage under the MSCP requires that the above criteria have been met, species-specific analyses of the Project’s effects on recovery are provided only for QCB and SDFS since take of these species was not addressed in the County’s Subarea Plan.

CUMULATIVE EFFECTS

Cumulative effects are effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR § 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any future non-Federal actions that are reasonably certain to occur within the action area and may affect the species and designated critical habitat included in this opinion.

SPECIES-SPECIFIC EVALUATIONS

San Diego goldenstar (*Bloomeria clevelandii*)

Status of the Species

Listing Status

San Diego goldenstar is not a State or federally listed species, but it is ranked 1B.1 on the CNPS list of rare plants. The 1B.1 ranking means the species meets the definitions of the California Endangered Species Act of the California Fish and Game Code, and are eligible for state listing and it is seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat).

Species Description

This plant is a perennial herb growing from a corm and producing two to eight narrow leaves up to 5.9 inches long. The erect inflorescence arises from ground level and may be up to 27.6 inches tall. It is shaped like an umbel with up to 30 flowers borne on pedicels approximately 1 inch long. The flower has six green-veined yellow tepals each up to a 0.39 inch long.

Habitat Affinities

Clay soils or cobbly loams in valley grasslands, coastal sage scrub, and chaparral, particularly in association with mima mound topography or vernal pools, are the preferred habitat of this perennial corm (Smith and Berg 1988). This plant does not typically grow in the shade of woody perennials, but is found in more open locales. Redding Cobbly loams are mapped for locations near Miramar, while Stockpen gravelly clay loam is found with the populations on northeastern Otay Mesa. Given the dearth of shrubs associated with goldenstar, clay soils with good shrink/swell potential (which discourages the establishment of shrubs) are preferred (Reiser 1994).

Life History

San Diego goldenstar is a spring-blooming (March to May), herbaceous perennial that is presumably insect-pollinated (e.g., bees; Wyatt 1983). In addition, it likely reproduces asexually by producing corm offsets. Seeds are presumably self-dispersed. The flowering of corm species depends on climatic conditions and, as such, this species has been found to dramatically differ in expression among growing seasons depending on rainfall and could be missed during a poor survey year.

Status and Distribution

This herb is found only in southwestern San Diego County and northwestern Baja California, Mexico (Wiggins 1980; Skinner and Pavlik 1994). A survey of herbarium specimens of this plant collected in the past century and deposited at the San Diego Natural History Museum indicates that few locations still exist in an undeveloped state or condition otherwise suitable for supporting populations of this plant. This corm grows near vernal pools on and around Otay

Mesa, Miramar Mounds, Miramar Air Station, around the Otay Lakes and Reservoirs, and Proctor Valley. It is also known from Escondido Creek near Via de las Flores, East Lake Chula Vista, Santee [here plants grow in great masses around ashy spike-moss (*Selaginella cinerascens*) balds], the Sweetwater Reservoir, the San Dieguito Reservoir, Lopez Canyon, near Beeler Creek in Poway, west of Escondido Creek, Mission Trails Park, Los Peñasquitos Canyon, Murphy Canyon, San Miguel Mountain, and Lake San Marcos Dam. Herbarium specimens include Foster (i.e., San Vicente Reservoir) and a locale at Rancho Santa Fe.

Threats and Conservation Needs

The primary threats to this species are loss of habitat due to urban development and the invasion of non-native grasses and forbs. Widespread grading throughout southwestern San Diego County

has eliminated major populations and outlying colonies. Additional threats to this species include cumulative habitat degradation, trampling, vehicular traffic and road construction, illegal dumping, bulb collecting, and edge effects. Effective conservation of San Diego goldenstar will require conservation of adequate habitat to support insect pollinators, to allow for population expansion through production of corm offsets, and to buffer against adverse edge effects. Studies have shown that fire can be beneficial to geophytes because it removes thatch and nonnative grasses/forbs and the resulting increase in light level at the ground surface and/or influx of post-fire nutrients stimulates growth and blooming. In addition, most bulbs/corms are buried deeply enough that they are not damaged by fire.

Environmental Baseline

Within San Diego County, there are 23 known occurrences on conserved lands, the majority of which are located within MSCP. In 2012, the Service estimated that about half the targeted conservation had been achieved within MSCP and an additional four occurrences were found and conserved outside the planned Preserve (Service *et al.* 2012). In 2016, 7 sites were monitored, and the average occurrence was greater than 1,000 plants per occurrence with an overall range of (0-140,000). San Diego goldenstar was recorded at several locations within the Project Area totaling approximately 4,952 individuals.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP”¹¹ because it will conserve 80 percent of the individuals on-site and translocate impacted individuals to the Preserve. The Project will result in direct impacts to 727 San Diego goldenstar individuals¹² and preserve approximately 2,944 individuals within Otay Ranch RMP Preserve, of which 881 are in Planning Area 16 and 2,063 are within Village 14. Per the Otay Ranch RMP, and as stated in the Amendment (Mitigation Measure M-BI-11), impacts to the 727 individuals of San Diego goldenstar are required to be mitigated through 1:1 replacement. Mitigation Measure BI-11 also requires the preparation and implementation of a Resource Salvage and Restoration Plan that will include an implementation plan, maintenance and monitoring program, estimated completion time, success criteria, and any relevant contingency measures to ensure no-net-loss of San Diego goldenstar. Long-term management and monitoring of San Diego goldenstar within the Preserve will be provided through implementation of the Otay Ranch RMP.

¹¹ MSCP Table 3-5 includes species specific measures that must be implemented by each subarea plan. For species that have unique requirements (e.g., San Diego goldenstar; translocation), a conclusion will be included to address this requirement.

¹² Individuals have been identified elsewhere in the Project footprint by the Department, so it is possible a small number of additional individuals could occur and be impacted by the Project due to the presence of suitable habitat; however, a large population is not expected as it would have been identified during baseline surveys. Since populations of this species can fluctuate year to year in both numbers and locations, it is possible that previous observations are no longer present or that this specific population was not blooming during the rare plant surveys. Since the Department does not have specific population data for the occurrences within their parcels, the impact numbers are based solely on the focused surveys conducted for the Project.

Effects of the Action

The Amendment will result in overall positive effects to San Diego goldenstar. No plants were observed on the 46.7 acres that will be designated “Take Authorized,” and an additional 31 plants will be conserved within the 192 acres that will be designated “Hardline Preserve” in Planning Area 16.

Conclusion

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service’s biological opinion that issuance of an amendment to the County’s ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the San Diego goldenstar. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in Table 3-5 “Species Evaluated for Coverage Under the MSCP.”
2. No plants occur within the 46.7 acres included in the Amendment for development. Thus, the Amendment will not affect the overall population numbers, distribution and reproduction.

Otay Tarplant (*Deinandra (Hemizonia) conjugens*)

Status of the Species

Listing Status

The Service listed Otay tarplant as endangered on October 13, 1998 (63 FR 54937) and published a recovery plan on December 7, 2004. The status of the Otay tarplant was described in detail in the recovery plan (Service 2004) and the 5-year review (Service 2009b). Please refer to these documents for detailed information on the Otay tarplant’s species description, habitat affinities and life history.

Status and Distribution

Otay tarplant is endemic to San Diego County, California, and Baja California, Mexico. At the time of listing, it was estimated that as many as 300,000 plants might exist within 32 occurrences (Service 2009b). In 2009, there were 34 known occurrences of the species in southwestern San Diego County (Service 2009b). A significant amount of research, monitoring, and management has occurred for this species since that time through the efforts of the MSCP partners, including the SDMMP. Most recently, the Conservation Biology Institute (CBI) and AECOM, in collaboration with SDMMP and funding from SANDAG has prepared a *Management Strategic Plan - Framework Rare Plant Management Plan for Conserved Lands in Western San Diego*

County (2020). This document provides the most up to date summary of the status of Otay tarplant and includes recommendations for management and monitoring.

Of the 25 occurrences on conserved lands for which we have population size data, 18 occurrences (72 percent) appear relatively stable with respect to size based on available data, while 7 (28 percent) have declined over time. It should be noted that (1) the monitoring record is incomplete for many occurrences (and some occur partially on private land) and (2) the time scale is insufficient to detect some trends, such as those related to genetic factors that may affect long-term persistence (e.g., isolation, inbreeding depression) (CBI *et al.* 2020).

Threats and Conservation Needs

At a regional scale, Otay tarplant may be affected directly or indirectly by altered fire regimes, climate change, and possibly, nitrogen deposition (Tonnesen *et al.* 2007; CBI 2018). At a Preserve level, 21 categories of threats have been recorded at tarplant occurrences through the monitoring process (CBI *et al.* 2020, see Figure 52). The most common threat observed are invasive plants. Because of these threats, the Service anticipates that intensive long-term monitoring and management will be needed to conserve this species. Specifically, we will need to manage the threats (e.g., invasive plants, thatch) at all occurrences to increase population size, maintain or increase genetic diversity, replenish the soil seed bank, and encourage pollinator activity.

Status of the Critical Habitat

Listing Status

The Service published a final rule designating critical habitat for Otay tarplant on December 10, 2002 (67 FR 76030).

Critical Habitat Description

Three critical habitat units have been designated for Otay tarplant on 6,330 acres in San Diego County, California. Designated critical habitat includes sufficient habitat to maintain self-sustaining populations of Otay tarplant throughout its range. The individual units contain essential habitat for Otay tarplant and help to identify special management considerations for the species. The proposed Project includes a portion of Unit 1 (Sweetwater/Proctor Valley Unit) of the final critical habitat designation. Unit 1 encompasses approximately 3,560 acres and contains populations at the northeastern extent of the species' historical distribution. Unit 1 was designated because it contains multiple large Otay tarplant populations that are capable of producing large numbers of individuals in good years, which is important for this species to survive through a variety of natural and environmental changes, as well as stochastic (random) events (67 FR 76042).

The PBFs essential to the conservation of the species that may require special management considerations or protection are soils with a high clay content (generally greater than 25 percent) or clay intrusions or lenses that are associated with grasslands, open coastal sage scrub, or maritime succulent scrub communities between 80 and 1,000 feet elevation (67 FR 76040).

Please refer to the final critical habitat rule (67 FR 76030) for detailed information on the units, including their sizes, locations, and special management considerations.

Examples of special management actions that may be necessary to protect essential habitat features and thus prevent further declines and loss of populations of tarplant include: (1) actions to prevent the degradation and/or type conversion of grasslands, open coastal sage scrub, or maritime succulent scrub into other unsuitable habitats, and (2) actions to restore degraded habitat areas. The PBF's contained within Unit 1 may require special management considerations or protection to minimize impacts associated with habitat type conversion and degradation occurring in conjunction with urban and agricultural development (67 FR 76042).

Environmental Baseline

Within the MSCP, there are 27 occurrences on conserved lands. Large occurrences (>5,000 individuals) are found at Bonita Meadows, Trimark, Johnson Canyon, west of Moody Canyon, Proctor Valley, Rolling Hills Ranch, north side of Otay River Valley, Mother Miguel grasslands, Dennery Canyon, Rice Canyon, and the Rancho Jamul Ecological Reserve. Otay tarplant individual numbers fluctuate widely depending on rainfall. As an example, in 2003, 45,747 individuals were observed at the San Diego National Wildlife Refuge (NWR) Proctor Valley monitoring site, and in 2004 only 25 individuals were observed. No individuals have been observed at this location in recent years. Within the Project Area, 25 individuals were observed within the off-site right-of-way for Proctor Valley Road within the City of Chula Vista.

Most of critical habitat Unit 1 has been conserved (2,855 acres/81percent). Within the Project Area, 3.6 acres will be conserved, and 8 acres will be impacted. Of the 8 acres to be impacted, approximately 2.4 acres are located within the City of Chula Vista and were addressed as part of the Rolling Hills Ranch Project and/or the City's Subarea Plan, 1.5 acres are located on City of San Diego Cornerstone Lands, and 4.1 acres are located within the northwestern portion of the Project Area within the Village 14 development footprint. Critical habitat was designated after the City of San Diego and County ITPs were issued; therefore, impacts were not addressed in the previous biological opinion.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in Table 3-5 "Species Evaluated for Coverage Under the MSCP" and will not incur any additional impacts that have not already been analyzed under the MSCP BO, County BO, and Chula Vista BO. All 25 individuals observed are within the right-of-way in the City of Chula Vista; therefore, this impact was analyzed in the Chula Vista BO and is covered under the City of Chula Vista Subarea Plan and associated permit.

Effects of the Action

There will be no impacts to Otay tarplant resulting from the proposed Amendment.

Effects on Critical Habitat

Areas within the County's Subarea plan were excluded from critical habitat with the exception of major and minor amendment areas. Critical habitat was designated for Otay tarplant using a 100-meter Universal Transverse Mercator (UTM) grid and was focused on the major amendment areas located north of the Project Area. Critical habitat that will be impacted within the Project Area occurs along the very edge of the designation and is included as a result of the scale of the mapping that was used in the final rule rather than the presence of Otay tarplant (Figure 5). The Project Area contains PBFs, but there are no known occurrences of Otay tarplant outside of the 2.4 acres of designated critical habitat that is located in Chula Vista, suggesting that the 5.6 acres of designated critical habitat within the Project footprint in the City and County of San Diego is less important than other areas of critical habitat for maintaining self-sustaining populations of Otay tarplant, which is the primary purpose of Otay tarplant critical habitat as described in the final critical habitat rule (67 FR 76030). Additionally, the acreage of critical habitat that will be impacted is small compared to the total size of Unit 1 (less than 1percent). The areas to be impacted off-site, within the City of Chula Vista, will be covered under the City's Subarea Plan. The conservation of 3.6 acres of critical habitat on-site within the Preserve will help offset impacts to Otay tarplant critical habitat from the Amendment.

Conclusion

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that issuance of an amendment to the County's ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of Otay tarplant or destroy or adversely modify Otay tarplant critical habitat. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in Table 3-5 "Species Evaluated for Coverage Under the MSCP."
2. The status of Otay tarplant has been documented to be stable at 18 of the 25 conserved occurrences within MSCP.
3. No plants occur within the 46.7 acres included in the Amendment for development. Thus, the Amendment will not affect the overall population numbers, distribution and reproduction.
4. The loss of 8 acres of designated critical habitat for the Otay tarplant within Unit 1 (3,560 acres) is not expected to appreciably diminish the value of the designated critical habitat as a whole to support recovery of the Otay tarplant.
5. The loss of the 2.4 acres of designated critical habitat that is located in Chula Vista was already analyzed under the Chula Vista BO and is the only critical habitat area where plants were observed.

6. The conservation of 3.6 acres of designated critical habitat on-site within the Preserve will help offset impacts to Otay tarplant critical habitat from the Amendment.

San Diego barrel cactus (*Ferocactus viridescens*)

Status of the Species

Listing Status

San Diego barrel cactus is not listed under the Federal Endangered Species Act. It is on the California Native Plant Society's List 2.1 (seriously threatened in California but common elsewhere).

Species Description

San Diego barrel cactus is a perennial stem succulent in the Cactaceae family (Parfitt 2011). The cactus is approximately 4 to 10 inches in diameter and generally not taller than it is wide. The spines are straight or slightly curved and red, pink or yellow when new, dulling to grey with age. The flowers are greenish-yellow, occasionally with red-brown mid-stripes. The fruit is yellow to red (Parfitt 2011).

Habitat Affinities

San Diego barrel cactus is primarily associated with Diegan sage scrub (Reiser 2001) but has also been documented in chaparral and grassland habitats, as well as on the periphery of vernal pools (CNPS 2011). It apparently spreads slowly and requires relatively open, undisturbed ground with sparse herbaceous cover within open shrub lands. It is found in sandy to rocky soils (Parfitt 2011) and occasionally on gravelly clay loams in the vicinity of vernal pools (Reiser 2001).

Life History

The blooming period for San Diego barrel cactus is May through June (CNPS 2011). It is insect-pollinated (Ludka 2009). A mutualistic relationship exists between native ants and the San Diego barrel cactus. Ants discourage herbivores from feeding on the plant reproductive structures while using the cactus for protection from predators (Ludka 2009). This species is less tolerant of high temperatures than other species of *Ferocactus* that inhabit warmer desert regions (Smith *et al.* 1984), which makes it not well adapted to high-intensity fire.

Status and Distribution

San Diego barrel cactus is restricted to San Diego County and Baja California, Mexico (Reiser 2001). In San Diego County, this species occurs below 1,476 feet elevation (CNPS 2011) along the coastal slope from Oceanside south to the United States-Mexico border. Although the species was formerly widespread within its San Diego range, it now persists in numerous, fragmented populations. Urban development has contributed to the decline of this species in coastal San Diego County (Reiser 2001).

Threats and Conservation Needs

The primary threats to San Diego barrel cactus are continued urban expansion along the coastal plain and associated edge effects (including invasion by non-native species), off-road vehicular traffic, and horticultural collecting. Spread of the species into new areas may be impaired by soil disturbance and associated invasion by weedy plant species. Spread of the non-native Argentine ant (*Linepithema humile*) into habitat for San Diego barrel cactus is detrimental to this species. There is some evidence that Argentine ants can prevent insects from pollinating the flowers (Ludka 2009). Irrigation practices associated with landscaping contribute to overall wetter soil conditions, thereby creating more favorable conditions for invasive ant species (Suarez *et al.* 1998; Holway and Suarez 2006). Conservation of this species will require protection of sizable populations and management to address disturbance associated with recreation and edge effects.

Environmental Baseline

Within the MSCP, approximately 70 percent of the mapped occurrences targeted for conservation have been conserved (Service *et al.* 2012). Approximately 50 San Diego barrel cacti were recorded in the Project Area. Approximately 12 San Diego barrel cacti are in the development footprint in the southern portion of the Project Area, primarily along Proctor Valley Road within the City of Chula Vista and on the City of San Diego Cornerstone Lands. The remaining 38 will be conserved within the Otay Ranch RMP Preserve. Additional observations of this species were made along Proctor Valley Road but were outside of the off-site improvements boundary.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will not incur any additional impacts that have not already been analyzed under the MSCP BO, County BO, and Chula Vista BO. All 12 individuals observed within the right-of-way for Proctor Valley Road will be impacted; however, this impact was analyzed in the Chula Vista BO and is covered under the City of Chula Vista and City of San Diego Subarea Plans and associated permits.

Effects of the Action

There will be no impacts to San Diego barrel cactus resulting from the proposed Amendment.

Conclusion

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service’s biological opinion that issuance of an amendment to the County’s ITP for the Otay Ranch Proctor Valley

Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of barrel cactus. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in Table 3-5 “Species Evaluated for Coverage Under the MSCP”.
2. No plants occur within the 46.7 acres included in the Amendment for development. Thus, the Amendment will not affect the overall population numbers, distribution and reproduction.

Spreading Navarretia (*Navarretia fossalis*) Critical Habitat

Status of the Critical Habitat

Listing Status

The Service published a final rule designating critical habitat for spreading navarretia on October 7, 2010 (75 FR 62192).

Critical Habitat Description

Six critical habitat units have been designated for spreading navarretia on 6,720 acres in Los Angeles, Riverside, and San Diego County, California. Designated critical habitat includes sufficient habitat to maintain self-sustaining populations of spreading navarretia throughout its range. The individual units contain essential habitat for spreading navarretia and help to identify special management considerations for the species. Unit 5 (San Diego Southern Coastal Mesa Management Area) is located in southern San Diego County and consists of six subunits totaling 748 acres. The proposed Project includes a portion of Subunit 5F (Proctor Valley) of the final critical habitat designation. Subunit 5F (Proctor Valley) encompasses approximately 88 acres and includes the R1-2 vernal pool complexes. Subunit 5F was designated as critical habitat because it supports a stable occurrence of spreading navarretia and provides potential connectivity between Subunits 5A and 5G.

The PBFs essential to the conservation of the species that may require special management considerations or protection have been defined as: (1) ephemeral wetland habitat; (2) intermixed wetland and upland habitats that act as the local watershed; and (3) soils that support ponding during winter and spring.

Please refer to the final critical habitat rule (75 FR 62192) for detailed information on the units, including their sizes, locations, and special management considerations.

Threats and Conservation Needs

When designating critical habitat, we assess whether the areas within the geographical area occupied at the time of listing contain the PBFs that may require special management

considerations or protection. The PBF's contained within Subunit 5F may require special management considerations or protection to address threats from invasion of non-native plant species and activities such as unauthorized recreational use or off-highway vehicle use that occur in vernal pool basins (75 FR 62210).

Environmental Baseline

Subunit 5F includes 51 acres that are on the City of San Diego Cornerstone lands and 37 acres of private land, which includes 27 acres of the Project Area. Of those 27 acres, approximately 4.1 acres are located on City of San Diego Cornerstone Lands, and 4.1 acres are located within the northwestern portion of the Project Area within the Village 14 development footprint. The remaining 18.8 acres are located within the proposed Preserve. Critical habitat was designated after the County ITP was issued; therefore, impacts were not addressed in the previous biological opinion.

Effects of the Action

The Project will result in permanent impacts to 8.2 acres designated as critical habitat for spreading navarretia and the conservation of 18.8 acres. There are no PBFs (ephemeral wetland habitat, associated watershed, and soils that support ponding) within the Project footprint. There are PBFs located within the City of San Diego Cornerstone Lands that could support this species; however, none of those features occur within the development footprint of the Project. In addition, the City of San Diego Cornerstone Lands are covered by the City's own MSCP permit and the City's Vernal Pool HCP.

Conclusion

After reviewing the current status of spreading navarretia critical habitat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that issuance of an amendment to the County's ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to destroy or adversely modify spreading navarretia critical habitat. We have reached this conclusion for the following reason:

1. The loss of 8.2 acres of designated critical habitat for spreading navarretia within Unit 5F (88 acres/9 percent) is not expected to appreciably diminish the value of the designated critical habitat as a whole to support recovery of the spreading navarretia. In addition, half of this acreage was already addressed under the City of San Diego's Vernal Pool HCP.
2. There are also no PBFs for spreading navarretia (ephemeral wetland habitat, associated watershed, and soils that support ponding) within the Project footprint within the County's Subarea Plan.
3. Eighteen and eight tenths acres of designated critical habitat will be conserved within the Preserve.

San Diego Fairy Shrimp (*Branchinecta sandiegonensis*)

Status of the Species

Listing Status

The Service listed the SDFS as endangered on February 3, 1997 (62 FR 4925). SDFS were included in the Vernal Pool Recovery Plan that was completed in 1998. Critical habitat for the SDFS was designated on December 12, 2007 (72 FR 70648). On September 20, 2010, the District Court for the District of Columbia vacated 151 acres of designated critical habitat as mandated by the District of Columbia Circuit Court of Appeals on September 14, 2011, and its underlying Opinion and Judgment dated July 22, 2011 (*Otay Mesa Property L.P. et al. v. U.S. Department of the Interior*, et al. 1:08-CY-00383). The status of SDFS was described in detail in the recovery plan (Service 1998b) and the 5-year review (Service 2008). Please refer to these documents for detailed information on the SDFS's species description, habitat affinities and life history.

Status and Distribution

The range of the SDFS includes Orange and San Diego counties in southern California and northwestern Baja California, Mexico (Brown *et al.* 1993; Service 1998b). In Baja California, SDFS have been recorded at two localities: Valle de Palmas, south of Tecate and Baja Mar, north of Ensenada. A single isolated female was previously reported from vernal pools in Isla Vista, Santa Barbara County, California; however, directed surveys have not located any additional individuals (62 FR 4934).

SDFS is currently considered to be extant at 137 known occupied vernal pool complexes in the United States. For convenience of reference, groups of vernal pools are sometimes referred to as vernal pool complexes that may include two to several hundred individual vernal pools (Keeler-Wolf *et al.* 1998). Vernal pool complexes are defined as a series of vernal pool groups that are hydrologically connected with similar soil types and species compositions. Within San Diego County, they were first described and surveyed by Beauchamp and Cass (1979) and subsequently updated in 1986 (Bauder) and 2004 (City of San Diego).

In Orange County, the SDFS has been documented at Fairview Park, Newport Banning Ranch, Irvine Ranch Lands Reserve (within an area formerly known as the North Ranch Policy Plan Area), and within the San Juan Creek watershed at Chiquita Ridge and Radio Tower Road. In San Diego County, SDFS is found in 132 vernal pool complexes. Within the City of San Diego, these pool complexes are located in Del Mar Mesa, Kearny Mesa, Mira Mesa, Chollas Heights, Mission Trails Regional Park, Marron Valley, and Otay Mesa. Additional occupied vernal pool complexes located in San Diego County, but not in the City of San Diego, are found within Marine Corps Air Station (MCAS) Miramar, Marine Corps Base (MCB) Camp Pendleton, Poway, Carlsbad, San Marcos, Santee, Ramona, Santa Fe Valley, Naval Base Coronado, Otay Mesa, Sweetwater Reservoir, and Tijuana Slough (Service 2008).

Threats and Conservation Needs

Threats to vernal pools and associated species such as SDFS can be divided into three major categories: (1) direct destruction of vernal pools from construction, vehicle traffic, grazing, dumping, and deep plowing; (2) indirect threats that degrade or destroy vernal pools (e.g., altered hydrology, draining, competition by introduced species, habitat fragmentation); and (3) potential long-term, cumulative impacts such as the effects of isolation on genetic diversity and locally adapted genotypes, air and water pollution, drastic climatic variations, and changes in nutrient availability (Bauder 1986).

Although predictions of climatic conditions for smaller sub-regions such as southern California remain uncertain, factors associated with climate change that could affect vernal pool species include: (1) drier conditions which may result in fewer suitable pool complexes, lower percent germination (plant species)/hatching (fairy shrimp species) rates, smaller population sizes, and fewer and less reliable recovery cycles of abundant individuals; (2) higher temperatures may inhibit germination/hatching, speed desiccation of pools, and affect pollinator services for plant species; (3) a shift in the timing of the annual rainfall may favor nonnative species; (4) the timing of pollinator life-cycles may become out-of-sync with the timing of flowering vernal pool plant species; and (5) drier conditions may result in increased fire frequency, making the ecosystems in which vernal pool species rely more vulnerable to the threats of subsequent erosion and nonnative/native plant invasion (Bauder *et al.* 2002; Bauder 2005; Hathaway and Simovich 1996).

Other threats specific to SDFS include hybridization, direct competition with the versatile fairy shrimp (*Branchinecta lindahli*) and cytoplasmic incompatibility induced by Wolbachia (or similar) bacteria. The versatile fairy shrimp has been documented within the range of the SDFS at Otay Mesa, MCAS Miramar, Del Mar Mesa, and MCB Camp Pendleton. Hybridization and competition could threaten the SDFS in the future should the range of the versatile fairy shrimp expand (Service 2008). In addition to incompatibility, the Wolbachia bacteria also can lead to biased sex ratios, parthenogenesis (female asexual reproduction), feminization of males, and a high juvenile male mortality. There is substantial evidence that the versatile fairy shrimp harbors feminizing endoparasitic bacteria (Krumm 2006). While there is no evidence of the bacteria in SDFS, the potential hybridization of the two species suggests that this could be a concern for the genetics and reproduction of the SDFS. These issues are being addressed with funding provided by ESA Section 6 and Transnet research grants. The results of this research will be used to refine management and monitoring techniques.

Conservation of vernal pool species is dependent on maintaining pool hydrology and the surrounding watershed, as well as protecting adjacent upland habitats including pollinators (for vernal pool plant species). Extant populations need to be preserved and managed to reduce stressors from on site and adjacent activities, and regular monitoring is essential to gauging population trends and stressor effects. For some vernal pool species, re-establishment of populations within extant unoccupied or restored pools may be warranted.

Impacts to vernal pools from development have been offset through the restoration, enhancement, and management of habitat. In some cases, due to security of the site and the

active management of the vernal pools, the species status has improved. In addition, grants have been awarded to restore habitat in several areas including Otay Mesa, the San Diego NWR, and City of San Diego Cornerstone lands. Sites that have been restored benefit from fencing and management, which further removes threats from the site that were occurring prior to the restoration efforts (Service 2008).

Environmental Baseline

The vernal pool complexes within Proctor Valley are referred to as the R series (Bauder 1986). The R1 complex occurs on 157 acres owned and managed by the City of San Diego Public Utilities Department. The complex includes 126 vernal pools, including pools that support SDFS. Proctor Valley Road currently bisects the vernal pool complex and provides access for off-road vehicle users and trash dumping. An off-road vehicle barrier was installed along the entirety of Proctor Valley Road in 2009-2010 to minimize these impacts. Portions of this complex have been restored. The site is managed by the City of San Diego and is included in their Vernal Pool HCP. Additional pools within the R2, R3, and R4 complexes are scattered throughout Proctor Valley on both the Project Area and on Department lands. These pools have not been restored and are not as extensive as the pools in R1.

Fifty-two basins have been mapped within the Project Area during protocol surveys, including 38 unvegetated road ruts, and 14 ephemeral basins (Figure 6). SDFS were detected in four of these basins (B2, D9, C14, and C21). An additional five basins were recently detected within City of San Diego Cornerstone Lands. Fairy shrimp surveys have not been completed for these pools; however, there is a high likelihood that they are occupied given the fact that these five additional basins support suitable habitat for SDFS and are in close proximity to adjacent pools that have been restored and support large populations of SDFS. The Project has been designed to avoid all of the basins known or assumed to be occupied by SDFS.

Effects of the Action

The Proposed Project has been designed to avoid impacts to basins occupied by SDFS. The Project will result in impacts to 10 basins categorized as ephemeral basins (0.098 acre) and 34 basins (0.099 acre) categorized as road ruts. Based on 2 years of protocol surveys, none of these basins are currently occupied by SDFS, but they could become occupied in the future. Seasonal variability in ponding as a result of varying rainfall amounts and patterns can affect SDFS occupancy in vernal pools from year to year (Bauder 2005; Simovich and Riley 2008). This variability can result in substantial differences in SDFS occupancy data at a site between years. Therefore, although no SDFS were detected during protocol surveys, there is a reasonable chance that some of the basins within the Project footprint may support SDFS. Any cysts that occur within the Project footprint would be crushed or buried during construction.

Indirect impacts to SDFS habitat may occur as a result of changes to hydrology, fragmentation, and edge effects. Changes in the natural micro-topography surrounding basins which support the species can alter natural hydrological regimes and may result in increased runoff, erosion, sedimentation, and contamination into the basins. The complex hydrology of these basins is

supported by both surface flows within a basin's topographic watershed (e.g., the surface area in which water drains into a basin) and subsurface flows that may extend beyond the surface watershed (Rains *et al.* 2006). Surface and subsurface lateral flows between basins and the surrounding uplands influence the onset and level of inundation and the seasonal drying of these basins (Hanes and Stromberg 1998). Therefore, modifications to the uplands surrounding a basin can negatively affect the pool's hydrology, even if such modifications occur outside the pool's surface watershed. These changes can then also impact SDFS (e.g., by reducing the ponding capacity of the basins).

These indirect impacts will be avoided and minimized to the extent feasible through best management practices that will be implemented to address erosion, sedimentation, and contaminants during construction (see M-BI-1, MBI-2, M-BI-14, M-BI-15 and M-BI-16 in Section 6.2 in the Amendment and the Preserve Edge Plan). Temporary fencing (with silt barriers) will be installed at the limits of Project impacts (including construction staging areas and access routes) to prevent the spread of silt from the construction zone into adjacent habitats to be avoided (M-BI-2 and M-BI-14). No nonnative plant species that may be invasive to native habitats will be used in the landscaping adjacent to any conserved areas (M-BI-16 and Preserve Edge Plan). Adjacent slopes will be designed to ensure there is no change in hydrology following construction of the adjacent houses and roadways (M-BI-15). In addition, to ensure that these measures are implemented, biological monitors will be on site during construction (M-BI-1).

Proctor Valley Road has been designed to avoid impacts to the R1 vernal pool complex. The Project will realign approximately 0.3 mile of Proctor Valley Road, between South Village 14 and Central Village 14, to the east of the restoration site, to provide a 100-foot buffer from the watershed of all basins that are located in the City of San Diego Cornerstone Lands, thus removing impacts from the road on the restoration site. The Proctor Valley Road realignment includes a bridge with a proposed span of approximately 702 lineal feet, which will allow the bridge to avoid the drainage, the vernal pools, and their watershed. In addition, the bridge pylons will be placed outside of the vernal pools and associated watershed. With this bridge design, the landscape in which these pools occur will be maintained, and the watershed input to the pools, as well as their outflow elevations, will not be altered. The bridge will not be directly over any of the pools, and direct impacts to the pools will be avoided during Project construction. Since the bridge will be situated to the south of the pools in an east-to-west alignment, it will result in minimal shading impacts.

Planning Area 19 was designed to avoid impacts to basins D4, A22, and A23 and their supporting watersheds; however, the buffer between the watershed and the development is only 5 to 40 feet. Edge effects will be minimized through implementation of the Preserve Edge Plan, however these pools may be subject to some indirect impacts due to their close proximity to development.

Effect on Recovery

The R complexes were not identified in the Vernal Pool Recovery Plan as necessary to stabilize or re-classify SDFS. Nonetheless, consistent with the Vernal Pool Recovery Plan criteria 1 and associated tasks, impacts to SDFS will be mitigated through restoration, enhancement,

preservation, and long-term management and monitoring of vernal pools within the Preserve. Impacts to 0.099 acre of road ruts and 0.098 acre of ephemeral basins will be offset at 1:1 and 2:1 ratios respectively, for a total restoration of a 0.3-acre basin area. A SDFS Restoration/Enhancement/Management Plan shall be submitted to and receive approval from the Service prior to impacts. Therefore, a minimum of 0.3 acre of pools will be restored within the Preserve, thus ensuring no net loss of habitat and supporting the recovery of the SDFS. Vernal pool restoration and enhancement is expected to re-establish the physical and biotic characteristics of vernal pool habitat such that critical functions are restored and will support populations of SDFS in a configuration that has long-term conservation value similar to the restoration work that has occurred on the adjacent Cornerstone Lands. A small number of cysts may be destroyed or damaged during restoration activities; however, the Project is expected to result in a net increase in the acreage and quality of vernal pool habitat occupied by the SDFS.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that issuance of an amendment to the County's ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the SDFS. We base this conclusion on the following:

1. All of the individual pools to be impacted are highly degraded and subject to ongoing threats due to lack of management.
2. The loss of 0.197 acres of basin area will be offset through preservation, restoration, enhancement, and perpetual management of 0.3 acre of vernal pool basin area. Therefore, there will be a net increase in occupied SDFS basin area.
3. The restoration and enhancement actions proposed are expected to be successful because the restoration/enhancement will be implemented in an area that likely supported vernal pools historically (soil types necessary to sustain vernal pool habitat are present), and the methods proposed for this restoration/enhancement effort have been successful on an adjacent site.
4. The conservation anticipated by the Project supports recovery of SDFS because it is consistent with the overall habitat protection and management goals outlined in the Vernal Pool Recovery Plan (Service 1998b); specifically, the Project is expected to result in a net increase in the acreage and quality of the vernal pools occupied by SDFS in Proctor Valley through the preservation, restoration, enhancement, and management of a total of 0.3 acre of vernal pool basins within the Preserve in a configuration that maintains habitat function and species viability.
5. The loss of 0.197 acre of basin area supporting few or no populations of SDFS will not affect the overall population numbers, distribution and reproduction of SDFS. Furthermore, the restoration of the 0.3 acre of vernal pool basin area will increase the

area of suitable habitat for the species and may result in an increase in the number of occupied basins within the R complexes in Proctor Valley.

Quino Checkerspot Butterfly (*Euphydryas editha quino*)

Status of the Species

Listing Status

The Service listed the QCB as endangered on January 16, 1997 (62 FR 2313) and issued a recovery plan for the species on August 11, 2003 (Service 2003b). An amendment to the recovery plan was finalized in January 2020 (Service 2020). The status of the QCB was described in detail in the recovery plan and the 5-year review (Service 2009a). Please refer to these documents for detailed information on the QCB's species description, habitat affinities and life history.

Status and Distribution

The QCB was historically found from the coastal slopes of Los Angeles, Orange, and San Diego counties as well as northern Baja California east to southwestern San Bernardino County and the western edge of the upper Anza-Borrego desert. Overall, more than 75 percent of the historical range of the QCB has been lost (Brown 1991; Service 2003b), and more than 90 percent of the subspecies' coastal mesa and bluff habitat, where most historical records are located, has been destroyed by habitat fragmentation, degradation, and development (Service database). Current information suggests that QCB has been extirpated from Los Angeles, Orange, and San Bernardino and the northern locations in Riverside County. The QCB is now known only from western Riverside County, San Diego County, and northern Baja California, Mexico.

Local distributions of QCB change dramatically over time, individual QCB observations do not adequately represent local distributions. Therefore, we discuss QCB population locations in terms of "occurrence complexes" (Service 2003b), which are our best estimators of approximate population location and population membership. Occurrence complexes are mapped in the recovery plan using a 0.6 mile (1 kilometer) movement radius from each butterfly observation, and may be based on the observation of a single individual. Occurrences within approximately 1.2 miles (2 kilometers) of each other are considered to be part of the same occurrence complex, as these occurrences are proximal enough that the observed butterflies were likely to have come from the same population (Service 2003b). Occurrence complexes may expand due to new butterfly observations, or contract due to habitat loss (e.g., occurrence complexes are defined in part by extant habitat) (Service 2003b).

The QCB recovery plan identifies six recovery units throughout Riverside and San Diego counties and describes the known extant occurrence complexes (or metapopulations) throughout the range of the subspecies (as updated by the 2020 amendment). Since the 2003 recovery plan, surveys have identified additional occurrence complexes and expanded some, while others have been lost (Service 2020, Table 1) or significantly reduced in distribution. The entire Northwest Riverside Recovery Unit is now believed to be unoccupied, and not likely to be recolonized without assistance. Furthermore, one of the two core occurrence complexes in the Southwest

Riverside Recovery Unit (Warm Springs Creek) is also likely extirpated. In western Riverside County, approximately a dozen occurrence complexes are believed to have been extirpated by habitat loss, isolation, or both since recovery plan publication. It will require intensive management to meet recovery criteria in these compromised recovery units, if that is possible, including measures such as habitat restoration, weed control, and assisted recolonization.

Within San Diego County, there are currently 37 occurrence complexes identified as extant, including 6 core areas (Service 2020) and 3 designated recovery units. New QCB observations in San Diego County (Service GIS database) between occurrence complexes identified in the recovery plan have resulted in merging of the Otay Valley, West Otay Mountain, Otay Lakes, Proctor Valley, Dulzura, and Honey Springs occurrence complexes into a single, expanded Otay Occurrence Complex (Service 2009a). The merging of occurrence complexes in the Otay area was expected based on the recovery plan, which noted that occupied habitat in the vicinity of Otay Lakes and Rancho Jamul is an area of key landscape connectivity for all subpopulations in southwest San Diego County (Service 2003b)

Threats and Conservation Needs

The QCB is threatened primarily by urban and agricultural development, non-native plant species invasion, off-road vehicle use, grazing, and fire management practices (62 FR 2313). These threats destroy and degrade the quality of habitat and result in the extirpation of local QCB populations. Also, enhanced nitrogen deposition, elevated atmospheric carbon dioxide concentrations, and climate change may have contributed to QCB population declines (Service 2003b). Sustained drought conditions can lead to extirpation of local populations, and broad scale climate anomalies may lead to phenological incompatibility between QCB and their host plants. Other threats to the species identified in the final listing rule (62 FR 2313) include illegal trash dumping and predation.

Non-native invasive plants may directly out-compete native plants, including butterfly host-plant species. This effect has been documented in a native plant community that supports the Bay checkerspot butterfly (*Euphydryas editha bayensis*) in the San Francisco Bay area (Weiss 1999). Not only does the increase in non-native plants degrade the quality of the native habitat, it may also increase the frequency or severity of wildfires, further adversely impacting the vegetation community and butterfly species.

Conservation needs include protecting habitat supporting known current populations (occurrence complexes) and landscape connectivity among them; and managing and enhancing QCB habitat. Habitat patch suitability is determined primarily by larval host plant density, topographic diversity, nectar resource availability, and climatic conditions (Service 2003b). QCB are generally found in open areas and ecotone situations within a variety of plant communities, including grasslands, chaparral, and coastal sage scrub. Open areas within a given vegetation community appear to be critical landscape features for QCB populations. Optimal habitat appears to contain little or no invasive exotic vegetation and a well-developed cryptogamic crust. With the continual threat of non-native invasive plants, active management will be necessary in some areas to maintain habitat suitability.

The primary larval food sources or host plants for the QCB in south western San Diego County are dot-seed plantain (*Plantago erecta*) and purple owl's clover (*Castilleja exserta*). While the use patterns of primary and secondary larval host plants are not fully understood, there is evidence that both may be necessary for the survival of QCB larvae (Service 2003b). QCB larvae, particularly in the early instars, have a very limited capacity for movement. Therefore, high local host plant density is necessary for high larval survival rates (Service 2003b). As adults, QCB use a number of flowering plants as nectar sources (67 FR 18359; Mattoni *et al.* 1997).

QCB population density appears to fluctuate drastically in response to annual climate variability (Murphy and White 1984). This population variability likely leads to extirpation and recolonization of local populations or metapopulation structure. Metapopulation dynamics have been studied extensively for the Bay checkerspot butterfly (Harrison *et al.* 1988), and at least some QCB locations are thought to be governed by metapopulation dynamics (Murphy and White 1984). Because local populations of QCB are likely susceptible to extirpation, it is important to maintain connectivity among local populations to allow for recolonization from nearby local populations (Service 2003b). Historically, the center of this insect's metapopulation in San Diego County is the region around Otay Mesa and Otay Lakes. It is from this population center that local species experts believe dispersing QCB adults can attempt to colonize suitable habitats and thus expand their range (Faulkner 2015).

The focus of management and enhancement of habitat includes the control of non-native invasive plants and maintaining healthy patches of host plant that are located within an average dispersal distance. Adult QCB butterflies are sedentary by nature and generally fly close to the ground. Long-distance dispersal of up to 4 miles has been documented in the bay checkerspot butterfly (Murphy and Ehrlich 1980), but dispersal studies in sum suggest that long distance movements by individual checkerspot butterflies are not common (Service 2003b).

Status of the QCB Critical Habitat

Listing Status

Critical habitat for QCB was designated on April 15, 2002 (67 FR 18356) and revised on June 17, 2009 (Service 2009b).

Critical Habitat Description

Approximately 62,125 acres of critical habitat for QCB within nine units are designated throughout the species' current range in the United States (i.e., Riverside and San Diego counties, California). Designated critical habitat includes sufficient habitat to maintain self-sustaining populations of QCB throughout its range. The individual units contain essential habitat for QCB and help to identify special management considerations for the species. The proposed Project includes a portion of Unit 8 (Otay) which encompasses 34,941 acres. Unit 8 is located in San Diego County, from the Mexican border to north of SR 94 in the vicinity of Otay Mountain and Otay Lakes. This unit was designated because it supports occurrence complexes identified in the recovery plan as important to the recovery in southwestern San Diego County. In addition, the western portion of this unit contains occupied habitat with a marine climate influence, an

environmental factor prevalent throughout most of the species' historic range and thought to be beneficial to population resilience because it provides climatic stability and higher average humidity, minimizing host plant susceptibility to drought (Service 2020). The Otay area west of the mountain, therefore, represents a vital element of habitat heterogeneity within the species' range.

The PBFs for QCB are those habitat features that are essential for larval diapause and feeding; pupation; adult oviposition, nectaring, roosting, basking, and dispersal; genetic exchange; and shelter. These habitat features include, but are not limited to: space for individual and population growth and for normal behavior; food, water, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitats that are protected from disturbance or are representative of the historical and geographical and ecological distributions of QCB. The PBFs essential to the conservation of QCB are:

1. Grassland and open-canopy woody plant communities, such as coastal sage scrub, open red shank chaparral, and open juniper woodland, with host plants or nectar plants;
2. Undeveloped areas containing grassland or open-canopy woody plant communities, within and between habitat patches, utilized for Quino checkerspot butterfly mating, basking, and movement; or
3. Prominent topographic features, such as hills and/or ridges, with an open woody or herbaceous canopy at the top. Prominence should be determined relative to other local topographic features.

Environmental Baseline

The Project is located in the Southwest San Diego Recovery Unit identified by the Service in the recovery plan for the QCB and within Unit 8 of the designated critical habitat. The Project Area encompasses 1,140.8 acres of potential QCB habitat, of which 527.1 acres will be impacted and 613.7 acres will be conserved. No comprehensive surveys for adult butterflies were completed by the Project proponent in the last 3 years; however, observations were made by other permitted biologists in areas that were accessible from the road. QCB were documented in three locations within the Project development footprint from 2017 through 2019: northeastern portion of the development footprint; west of Proctor Valley Road, and east of Proctor Valley Road. In addition, from 2017 through 2019, QCB were documented in three additional locations within lands to be preserved as part of the proposed Amendment: two locations within PV1 and one location within R16. There are 856 acres of designated QCB critical habitat within the Project Area, including 808 acres with PBFs.

QCB have also been observed on the conserved lands owned and managed by the Service and Department, hereafter referred to as the Wildlife Agencies, to the north and east of the Project Area. Therefore, most of Proctor Valley is considered occupied and provides connectivity between the highly productive habitat patches to the south around Otay Lakes and to the north on the San Diego NWR. Given the distance between these highly productive patches, Proctor Valley needs to provide live-in habitat supporting reproduction to sustain the connectivity function. Collectively, these occurrences make up the Otay Occurrence Complex, which is

included in Unit 8 of critical habitat. The Otay Occurrence Complex is considered a “core occurrence complex”. Core occurrence complexes are considered likely centers of population density based on characteristics including geographic size, number of reported individuals, documented reproduction, and repeated observations. Such population density centers are likely to contain habitat supporting local “source” populations for a metapopulation (Murphy and White 1984; Ehrlich and Murphy 1987; Mattoni *et al.* 1997; Service 2003b). Approximately 73 percent of Unit 8 has been conserved, to date.

Large portions of the Otay Occurrence Complex burned in the 2003 and 2007 fires, which has contributed to the invasion of non-native plants. Since that time the Service has been actively managing QCB habitat on the San Diego NWR. Methods include de-thatching; herbicide applications; and seeding with host and nectar plants. These efforts have improved the extent and quality of QCB habitat on the refuge (see Strahm 2020). Other landowners have also implemented restoration and enhancement projects for QCB, including several sites within the Otay Ranch RMP Preserve (Land IQ and CBI 2015; Caltrans 2018). In addition to habitat enhancement, the Service has also been augmenting the QCB population on the refuge and has been working with local experts to develop a metapopulation model to identify key population dynamic parameters and habitat patch configurations required to support resilient metapopulations. Preliminary results of the project were used, in part, to develop the QCB Conservation Strategy for this Project.

The MSCP did not include the QCB as a covered species at the time it was developed. However, the City of Chula Vista did cover the QCB in its MSCP Subarea Plan, conserving 2,806 acres of QCB habitat. Chula Vista also provides active QCB management in their Preserve areas. Lands placed into the Service’s San Diego NWR also provide for the conservation of the QCB. The Rancho San Diego and Las Montañas Occurrence Complexes are located on the Otay/Sweetwater Unit of this refuge with approximately 9,000 acres of QCB habitat conserved. The Department manages over 10,000 acres of occupied QCB habitat within the current San Diego regional MSCP Preserve.

Effects of the Action

Vegetation clearing and other Project-related construction activities will eliminate up to 527 acres of occupied habitat, within which there are 500.2 acres of critical habitat, 4.21 acres of host plants, and 3 locations where 1-4 adult butterflies were observed in 2017 and 2019 (Dudek 2020). This will result in crushing or burying of any QCB eggs, larvae, and pupae present on site and possible death, injury, or displacement of adults that occur within the Project footprint. Displaced adults may suffer loss of their primary breeding, feeding, or sheltering habitat. Project construction may result in temporary impacts to surrounding occupied habitat from fugitive dust, which may slow plant productivity including host plant productivity, and may mildly impede respiration of QCB larvae or adults by blocking breathing holes (spiracles). Nighttime lighting attracts some insects, and this may increase predation rates on QCB by directly attracting predators or indirectly attracting predators that feed on insects drawn to light.

Comprehensive host plant mapping was completed in 2016 and locations were mapped as “Low” (1-100 plants), “Moderate” (100-1,000 plants), and “High” (1,000-10,000 plants). Using the mid-point of the estimated host plant populations, the Project would impact approximately 59 percent of the QCB larval host plants on the Project Area, impacting 29 of 69 “High” host plant locations. The loss of high quality host plant locations may disrupt the metapopulation structure both on-site and within the broader Otay Occurrence Complex. QCB rely on a network of suitable habitat patches, including temporarily unoccupied patches of habitat for population resilience.¹³ These patches of habitat allow QCB populations to expand and contract with resource availability (Murphy and White 1984) and maintain genetic exchange between populations. Habitat within Proctor Valley and on the Project site connects the large source populations¹⁴ around Otay Lakes to the smaller satellite populations to the north and east (Figure 7).

Despite the potential impacts described above, the Project includes a QCB Conservation Strategy and Framework Management Plan that was designed to ensure that QCB persist within Proctor Valley and support the meta-population structure. These plans outline enhancement, restoration, management, and monitoring activities that are included as part of the mitigation for QCB. The Conservation Strategy includes the following 3 goals:

1. Maintain and enhance potential QCB habitat connectivity, thereby protecting QCB movement and “live in” habitat within and throughout Proctor Valley;
2. Create “functional uplift” within conserved potential QCB habitat; and
3. Commit to assessment, adaptation, and management of QCB habitat within the Project Area to ensure perpetual conservation of QCB, leading to improved recovery status.

To achieve these goals, the Conservation Strategy outlines 4 tasks:

1. Controlling invasive species and allowing for the expansion of existing host plant resources within QCB habitat nodes or other areas targeted for weeding and enhancement. This will include a minimum of 2.0 acres of QCB host plant expansion;
2. Seeding of more host plant (e.g., *Plantago erecta*) in Preserve areas with the proper soil and topographic characteristics;
3. Monitoring and reporting as to the quality and functionality of the conserved potential QCB habitat; and
4. Implementing an adaptive management strategy.

¹³ Population resilience is defined in the amendment to the recovery plan as “the ability of a [QCB] metapopulation or population to survive periodic extreme and unpredictable environmental circumstances and persist long-term (50+ years) in an ecosystem not [irreparably] compromised by human impacts” (Service 2020).

¹⁴ A local source population is one in which the emigration rate typically exceeds the immigration rate, and is thus a source of colonists for unoccupied habitat patches within a metapopulation distribution (Service 2003b).

As described above under *Threats and Conservation Needs*, control of invasive plant species and maintenance of suitable habitat patches is critical to the survival and recovery of QCB. In the absence of focused management, the habitat within the Project Area would continue to degrade over time and likely would not support QCB. As described above, the Conservation Strategy was based, in part, on the QCB management occurring on the San Diego NWR. If implemented successfully, the QCB Management Plan will conserve 2.6 acres of host plant (including 40 “High” host plant locations), expand host plant patches within 1.23 acres of currently marginal habitat, and restore at least 2 acres of host plant patches. These concentrated host plant patches will be within 6 “node clusters” that will cumulatively add up to 25 acres of strategically managed habitat. These node clusters will be arranged within the conserved land to promote connectivity between occupied patches near Otay Lakes and the San Diego NWR. The location and configuration of the nodes can be modified over time based on the results of the on-going modeling and augmentation efforts. Management effort within the node clusters will be consistent into the future, but management effort within individual clusters should decrease over time and allow creation of additional node clusters over time. Therefore, over time we anticipate that additional QCB live-in habitat will be created and the connectivity function of the Project Area overall will be maintained or improved, thus maintaining the population within Proctor Valley and the distribution of QCB within the Recovery Unit (Figure 8). Preliminary results from our on-going efforts on the refuge suggest that this approach has merit. Some take may occur from implementation of the QCB Management Plan as QCB eggs, larvae, and pupae are difficult to see and may be inadvertently impacted during surveys, weeding, and other management activities; however, these impacts will be minimized to the extent feasible, and implementation of the QCB Management Plan will benefit QCB over the long-term by addressing the on-going threat from habitat degradation.

Effect on Critical Habitat

The Project will impact 500.2 acres of QCB critical habitat with PBFs which is less than 1 percent of the overall designation and 2 percent of Unit 8. The Project will conserve 310 acres of critical habitat and provide permanent funding for management and monitoring of the habitat. Without active management of invasive species and the maintenance of suitable patches of host plants, the existing habitat will continue to degrade over time. The Project will eliminate existing occupied critical habitat; however, with the conservation measures proposed, we anticipate that the Project Area will continue to support QCB breeding, feeding, and sheltering and maintain the area’s current connectivity function as described above.

Effect on Recovery

The QCB recovery plan recommends permanent protection of occurrence complexes for downlisting of QCB to threatened status. The Project Area was within the Proctor Valley Occurrence Complex when the recovery plan was written and has been merged into the Otay Occurrence Complex based on recent observations (Service 2020). The QCB recovery plan amendment specifically recommends conservation (protection and management) of the Otay Occurrence Complex as one of the largest four core occurrence complexes. Based on our understanding of the QCB ecological requirements within the Otay Occurrence Complex, the

Project Area is within an area that supports QCB connectivity between highly productive patches of occupied habitat in the south and northwest. To maintain this connectivity function, the Project Area needs to include occupied patches that support reproduction in most years as part of a greater metapopulation structure. As described above, the conservation measures proposed will provide the habitat protection and management necessary to meet both downlisting and delisting criteria within the Project Area. Additional habitat protection and management will be necessary outside of the Project Area to provide adequate conservation to meet these recovery criteria for the Otay Occurrence Complex as a whole.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that issuance of an amendment to the County's ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the QCB or destroy or adversely modify QCB critical habitat. We base these conclusions on the following:

1. Impacts to 500.2 acres of critical habitat, while locally significant, are less than 1 percent of the overall designation and 2 percent of Unit 8. This impact will be offset through the conservation of 310 acres of critical habitat and permanent funding for management and monitoring of the habitat, as well as the enhancement of nectar resources and larval host plants throughout the Conserved Open Space to maintain connectivity both within and through the site. Therefore, this impact is not expected to appreciably diminish the value of the critical habitat as a whole to support recovery of the QCB.
2. The proposed conservation measures will minimize potential direct and indirect impacts to QCB and help protect habitat patches and landscape connectivity within the Preserve that may be important to regional metapopulation dynamics and recovery of the species.
3. Relatively few QCB (7 individuals in 2019) have been observed on the Project Area, which constitutes a very small portion of the range-wide distribution of the species, and the conservation measures proposed will ensure that QCB continue to survive and reproduce within the Project Area. Therefore, the Project will not affect the overall population numbers, distribution, and reproduction of QCB.

Orange-throated Whiptail (*Aspidoscelis hyperythra*)

Status of the Species

Listing Status

The orangethroat whiptail, also referred to as the orange-throated whiptail, is not listed under the Federal Endangered Species Act. It is on the California Department of Fish and Wildlife's Watch List which means there is concern and need for additional information to clarify the status.

Species Description

The orangethroat whiptail is a moderate-sized gray, reddish brown, dark brown, or black lizard with five to seven pale yellow or tan stripes (Stebbins 2003). Adults have varying degrees of red- orange wash that may occur on all undersurfaces. The orange wash is especially prominent on the throat and chest in breeding males. In hatchlings and juveniles, the tail is a highly visible bright blue (Stebbins 2003).

Habitat Affinities

Orangethroat whiptails occur primarily in open coastal sage scrub but may also occur in open chaparral, non-native grassland, oak woodland, alluvial fan scrub, and riparian areas (Brattstrom 2000). According to McGurty (1981), most of the orangethroat whiptail populations were historically known to occur on the floodplains or stream terraces adjacent to other suitable habitat such as coastal sage scrub.

The orangethroat whiptail may prefer more open scrub habitat because spaces in the canopy could provide better opportunities for the whiptails to forage and thermoregulate (McGurty 1981; Rowland 1992). Another important habitat characteristic is the presence of western subterranean termites (*Reticulitermes hesperus*) as these termites make up the majority of the orangethroat whiptail's diet (Bostic 1966a). The presence of perennial shrubs, such as California buckwheat, provide substantial amounts of leaf litter as a food source for the termites (Rowland and Brattstrom 2001) so are likely an important component of the habitat.

Vegetation alone is not always a good predictor of orangethroat whiptail presence. Other habitat characteristics such as cover, soil, and slope are also important for orangethroat whiptails (Brattstrom 2000). For example, Brattstrom (2000) found that orangethroat whiptails occurred more frequently on medium to coarse soil because the coarse soil is a good substrate for burrowing, and medium sized soil may be easier for the whiptail to escape into for cover.

Orangethroat whiptails are also known to occur in areas with light disturbance such as dirt roads and trails within suitable habitat (Brattstrom 2000), perhaps because the disturbance provides openings in the canopy and/or loosens the soil, creating additional opportunities for burrowing.

Life History

The orangethroat whiptail reproduces sexually, not by parthenogenesis as in some whiptail species. Orangethroat whiptails' average clutch size is 2.3 eggs (Bostic 1966b). It appears that adult females (2 years of age or older) deposit one clutch of eggs in June and another in mid-July, whereas yearlings generally deposit one clutch in late June through mid-July (Bostic 1966b). Adult whiptails usually enter into hibernation in late July through most of September while immatures enter into hibernation in December; individuals may emerge from hibernation in late March through April (Bostic 1966c).

Bostic (1965) recorded a mean home range of 0.11 acre for adult orangethroat whiptails. Little specific data exists on dispersal distances by orangethroat whiptails.

Whiptails feed primarily on termites, which comprise 72 to 92 percent of the diet (Bostic 1966b). In late summer, when termites move deeper into the soil to avoid high surface temperatures, orangethroat whiptails eat alternate prey (Bostic 1966b).

Status and Distribution

The historic and current range of the orangethroat whiptail extends from Orange County and southern San Bernardino County southward through western Riverside and San Diego counties to Loreto, Baja California, Mexico (Jennings and Hayes 1994). The elevation range is from near sea level to 3,400 feet, although 99 percent of observations occur below 2,800 feet (Jennings and Hayes 1994). Although the orangethroat whiptail has a similar range as it did historically, Jennings and Hayes (1994) estimate that about 75 percent of the potential habitat throughout its range has been lost.

Threats and Conservation Needs

No current information exists for range-wide population trends for the orangethroat whiptail. Habitat destruction and fragmentation as a result of development and agriculture have been identified as the primary threats to the orangethroat whiptail (Jennings and Hayes 1994).

Other potential threats to the orangethroat whiptail are the invasion of non-native Argentine ants, which displaces many native insects and may influence the orangethroat whiptail's food base (Jennings and Hayes 1994), and domestic cats from homes adjacent to open space. Invasion by non-native grasses and changes in fire frequency are also potential threats to the orangethroat whiptail. Excessive fire, which is often associated with urban encroachment into scrublands, can degrade habitat for this species by facilitating invasion by non-native grasses into areas formerly dominated by coastal sage scrub and chaparral (McGurty 1981). In addition, increased fire frequency can eliminate leaf litter, which provides cover for the orangethroat whiptail and a food source for the western subterranean termite. According to Brattstrom (2000), orangethroat whiptails were usually found in areas that had not been burned within the last 5 years.

The conservation needs for this species include conserving large blocks of suitable habitat and conserving connections between the conservation areas. Suitable habitat needs to be conserved,

managed, and restored through public and private actions. Several large-scale habitat conservation plans have been implemented in southern California in recent years. The orangethroat whiptail is a covered species in each of these plans. These plans have allowed for substantial impacts to suitable habitat for the orangethroat whiptail, but they have also required substantial conservation and habitat management to offset these impacts. Following implementation of these plans, suitable habitat for the whiptail is anticipated to be conserved and developed within each plan area. It is anticipated that the orangethroat whiptail will also benefit from the conservation and habitat management practices, such as control of invasive plant species and non-native predators, in reserve lands associated with these large-scale habitat conservation plans.

Environmental Baseline

Within the MSCP, approximately half of the mapped occurrences targeted for conservation have been conserved, as well as 42 additional points outside of the Preserve. In addition over 65 percent (85,000 acres) of potential habitat had been conserved by 2011 (Service *et al.* 2012). Additional habitat has been conserved since that time. There were no direct observations of orangethroat whiptail within the proposed Project Area; however, there is high potential for this species to occur within the entire Project Area, including PV2, PV3, and the access road. Approximately 483.9 acres of modeled habitat occurs within the Project footprint, which includes 45.7 acres within the Amendment area (PV2, PV3, and access road). These impacts will be offset through the conservation of over 570 acres of modeled habitat within the Conserved Open Space and Otay Ranch RMP Preserve (Dudek 2020). Comprehensive status and distribution data derived from surveys for the orangethroat whiptail in California are not currently available.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will result in a net gain of 117.3 acres of modeled habitat from what was anticipated under the MSCP for this Project.

Effects of the Action

Approximately 45.7 acres of modeled habitat within the Amendment area will be impacted by the Project. This loss will be offset through the conservation of additional habitat within Planning Area 16. The consolidation of the development and open space will maintain larger blocks of habitat and minimize edge effects relative to what was originally permitted under the MSCP. Therefore the Amendment will result in overall positive effects to the orangethroat whiptail.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service’s biological opinion that issuance of an amendment to the County’s ITP for the Otay Ranch Proctor Valley

Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the orangethroat whiptail. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will result in a net gain of 117.3 acres of modeled habitat from what was anticipated under MSCP for this Project.
2. Indirect impacts and edge effects on suitable habitat for orangethroat whiptail will be minimized through the implementation of the Preserve Edge Plan.
3. The historic and current range of the orangethroat whiptail extends from Orange County and southern San Bernardino County southward through western Riverside and San Diego counties to Loreto, Baja California, Mexico. The Amendment area encompasses a small portion of the species’ overall range; thus, the Amendment will not affect the overall population numbers, distribution, and reproduction.

Coast Horned Lizard (*Phrynosoma blainvillii*)

Status of the Species

Listing Status

The coast horned lizard is not listed under the Federal Endangered Species Act. It is a California Department of Fish and Wildlife species of special concern which means declining population levels, limited ranges, and/or continuing threats make the species vulnerable to extinction.

Species Description

The coast horned lizard is a medium sized (2.5-4.5 inches snout to vent), wide, flat bodied terrestrial lizard that has conspicuously pointed scales along its body and large horns around the base of its head.

The former *P. c. blainvillii* (San Diego subspecies of coast horned lizard) is no longer considered to be a separate subspecies. However, the common name San Diego horned lizard is still widely used and now refers to the *blainvillii* population of coast horned lizard.

Habitat Affinities

The coast horned lizard is found in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest (Klauber 1939; Jennings and Hayes 1994; Stebbins 2003). However, it is most common in shrub-dominated communities. Key habitat elements include loose, fine soils with a high sand fraction, an abundance of native ants, open areas with limited overstory for basking and areas with low, dense shrubs for refuge (Jennings and Hayes 1994). In inland areas within dense brush habitats,

San Diego horned lizards are restricted to areas with pockets of open microhabitat, created by disturbance (e.g., floods, fire, roads, grazed areas, fire breaks) (Jennings and Hayes 1994).

Life History

The coast horned lizard emerges from hibernation in March and becomes surface active in April through July, after which most adults aestivate again (summer hibernation) (Hagar 1992). The adults re-appear again briefly in late summer and return to overwintering sites between August and early October depending upon elevation (Klauber 1939; Hagar 1992).

In southern California, the reproductive cycle for male coast horned lizards begins during mid to late March and ends in June as testes decrease in size. Female coast horned lizards are oviparous, laying clutches of 6 to 17 eggs between May and July each year (Goldberg 1983; Stebbins 2003). Hatchlings appear in late July to early August and require 2 to 3 years to reach reproductive age (Pianka and Parker 1975; Goldberg 1983).

Over 95 percent of the diet of the coast horned lizard consists of native ants, primarily harvester ants (*Messor* and *Pogonomyrmex* sp.) and acrobat ants (*Crematogaster californica*) (Pianka and Parker 1975; Suarez and Case 2002). Other slow-moving insects, such as beetles, flies, and caterpillars are consumed opportunistically when encountered (Pianka and Parker 1975). This species does not appear to eat non-native Argentine ants (Jennings and Hayes 1994), which have displaced the native ants in much of coastal southern California (Suarez *et al.* 2000).

Potential predators of the coast horned lizard include snakes, leopard lizards, raptors, corvids, roadrunners, loggerhead shrikes, badgers, foxes, coyotes, and domestic dogs and cats (Zeiner *et al.* 1988; Jennings and Hayes 1994).

Status and Distribution

In California, the *blainvillii* population of coast horned lizard ranges from the Transverse Ranges south to the Mexican border west of the deserts, although the taxon occurs on scattered sites along the extreme western desert slope of the Peninsular Ranges (Jennings 1988). The known elevation range of this population is from about 33 feet at the El Segundo dunes (Los Angeles County) to 6,986 feet at Tahquitz Meadow, on San Jacinto Mountain, in Riverside County (Jennings and Hayes 1994).

The coast horned lizard (the species to which the *blainvillii* population belongs) extends further north along central and coastal California, as far north as Sonoma County along the coast and Tehama County in central California. The *blainvillii* population is estimated to have disappeared from about 45 percent of its former range in southern California, in particular on the coastal plain and alluvial fans where it was once common (Jennings and Hayes 1994).

Threats and Conservation Needs

The greatest threats to the coast horned lizard historically have been the direct loss of habitat, agriculture and urbanization and a variety of edge-associated effects, including an altered fire

regime, invasion by nonnative species, off-road vehicles, accessibility to collectors, and road-associated effects (Jennings and Hayes 1994). At present, no population trend figures are available across the species' range.

The continued displacement and elimination of its food base of native ants by the Argentine ant is a major threat to the coast horned lizard. Argentine ants colonize around disturbed soils associated with building foundations, roads, and landfills and expand into adjacent natural areas, eliminating native ant colonies (Ward 1987). The Argentine ant also appears to be dependent on moisture in arid environments (Hertzer 1930). Moisture associated with adjacent development, such as water runoff from residential/commercial irrigation systems that flow into open space, may result in favorable conditions for the Argentine ant (Suarez *et al.* 1998). Argentine ants can follow roads deep into native habitat reserves and into the larger fragments (Suarez *et al.* 1998). Within areas where Argentine ants have invaded, the diet of the horned lizard changes significantly to include more of the other arthropod species (Suarez *et al.* 2000). Suarez and Case (2002) fed horned lizard hatchlings a diet of arthropods typical of invaded areas and found average growth rates near zero.

The conservation of the coast horned lizard depends on conserving large blocks of suitable habitat and conserving connections between the conservation areas. In addition, suitable habitat needs to be maintained and restored. Based on the available information, the most important management need for coast horned lizards is maintaining a healthy population of native ants by controlling the non-native Argentine ant population. Other management activities should address additional threats, including controlling fire ignition and spread, maintaining connectivity by providing bridges and culverts for dispersal, controlling invasive plants, and limiting predation by urban predators, such as cats, dogs and ravens.

Environmental Baseline

Within the MSCP Subregional plan, at least 42 percent of the mapped occurrences targeted for conservation have been conserved as well as 9 additional points outside of the Preserve. In addition over 65 percent (85,000 acres) of potential habitat had been conserved by 2011 (Service *et al.* 2012). Additional habitat has been conserved since that time. Within the Project Area, the coast horned lizard was observed several times during surveys, and there are 1,285.3 acres of modeled habitat throughout open areas in coastal sage scrub and chaparral communities. Approximately 531 acres of modeled habitat occur within the Project footprint, including 46.5 acres within the Amendment area (PV2, PV3, and access road). These impacts will be offset through the conservation of over 630 acres of modeled habitat within the Conserved Open Space and Otay Ranch RMP Preserve (Dudek 2020). Two occurrences were identified within the Otay Ranch RMP Preserve in Planning Area 16. In addition, the presence of harvester ants (*Pogonomyrmex* sp.) observed within the Project Area would provide a food source for this species. Comprehensive status and distribution data derived from surveys for the coast horned lizard in California are not currently available.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will result in a net gain of 144.7 acres of modeled habitat from what was anticipated under the MSCP for this Project.

Effects of the Action

Approximately 45.7 acres of modeled habitat within the Amendment area will be impacted by the Project. This loss will be offset through the conservation of additional habitat within Planning Area 16. The consolidation of the development and open space will maintain larger blocks of habitat and minimize edge effects from what was originally permitted under MSCP. Therefore the Amendment will result in overall positive effects to the coast horned lizard.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service’s biological opinion that issuance of an amendment to the County’s ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the coast horned lizard. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will result in a net gain of 144.7 acres from what was anticipated under the MSCP for this Project.
2. Indirect impacts and edge effects on suitable habitat for coast horned lizard will be minimized through the implementation of the Preserve Edge Plan.
3. The *blainvillii* population of the coast horned lizard is widespread across southern California. The Amendment area encompasses a small portion of the *blainvillii* population’s range and an even smaller portion of the overall species’ range; thus, the Amendment will not affect the overall population numbers, distribution, and reproduction.

Cooper’s Hawk (*Accipiter cooperii*)

Status of the Species

Listing Status

The Cooper’s hawk is not listed under the Federal Endangered Species Act. It is a California Department of Fish and Wildlife species of special concern with a California Natural Diversity Database (CNDDB) rank of G5S4 which means it has a very low risk of extinction across its range and at a fairly low risk of extirpation in the state.

Description

Cooper's hawk is a medium-sized hawk with short, rounded wings and a long, rounded tail. Their legs are yellow, iris yellow in younger birds, and orange or red in older birds (Rosenfield *et al.* 1992). The sexes are similar in plumage, but males are generally more brightly colored than females (Rosenfield and Bielefeldt 1993). Their back and upper wing coverts are brown to blue-gray in adults, and medium brown with some white mottling and rufous feather edging in juveniles (Rosenfield and Bielefeldt 1993).

Habitat Affinities

The Cooper's hawk breeds primarily in riparian areas and oak woodlands and is most common in montane canyons (Garrett and Dunn 1981). It frequents landscapes where wooded areas occur in patches and groves and often uses patchy woodlands and edges with snags for perching and dense stands with moderate crown-depths for nesting (Zeiner *et al.* 1990). The Cooper's hawk tends to nest in forest patches with lower densities of taller and larger trees and a greater proportion of hardwood cover than conifer (Trexel *et al.* 1999). Migrant and wintering birds are generally less selective in their choice of habitats and may be found with regularity in developed (e.g., suburban) areas; however, Zeiner *et al.* (1990) noted that this species is seldom found in areas without dense tree cover or patchy woodland habitat. Nests are generally located on a horizontal limb of a pine or hardwood, near the trunk or in the crotch of a hardwood tree species, usually 3 to 18 meters above the ground and occasionally in the old nest of a crow (Harrison 1978). Within California, Cooper's hawks use dense stands of live oak, riparian deciduous, or other forest habitats near water most frequently (Zeiner *et al.* 1990), although they may also be found in eucalyptus woodlands.

Life History

The Cooper's hawk is diurnally active throughout the year (Zeiner *et al.* 1990). During breeding and non-breeding, the species predominantly uses avian prey, sometimes taking fish, small mammals, reptiles and amphibians (Terres 1980). In comparison to the northern goshawk, the Cooper's hawk takes more avian prey (Bosakowski *et al.* 1992). The Cooper's hawk hunts in broken woodland and habitat edges, catching prey in the air, on the ground, and in vegetation. They use cover to hide, attack, and approach prey but will also soar and make low, gliding search flights (Zeiner *et al.* 1990). It forages by dashing through the woods in a low, swift flight, around trees, through the brush and reaches out in the air or on the ground to catch avian prey with their talons (Terres 1980). After catching its prey, the Cooper's hawk may fly with the prey to a water source in order to drown it (Terres 1980).

Both sexes are usually present on the nest area by mid-to late March (Meng 1951). In California, the first eggs are generally laid in April (Asay 1987). Pairs will often renest if the initial clutch is lost in early incubation or before (Rosenfield and Bielefeldt 1993). Clutch size ranges from 1 to 7 and is usually 3 to 5 (Rosenfield and Bielefeldt 1993). Eggs are incubated mostly by the female for approximately 24 days (Terres 1980). Females care for and feed the young until they are able to dismember prey on their own (approximately 18–21 days) (Meng 1951). Cooper's hawk

fledglings depart the nest at 27 to 30 days, but will return to the nest for prey deliveries and roosting for at least 10 days (Reynolds and Wight 1978). Age of first breeding is generally 2 years or older (Rosenfield and Bielefeldt 1993).

Mortality rates have been estimated as 72 percent to 78 percent in the first year, and 34 percent to 37 percent thereafter (Rosenfield and Bielefeldt 1993). The maximum reported age for a Cooper's hawk is 12 years (Rosenfield and Bielefeldt 1993). Eggs may be depredated by raccoons and rarely by American crow (*Corvus brachyrhynchos*) (Rosenfield and Bielefeldt 1993). Adults may be depredated by great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), and northern goshawk (*Accipiter gentilis*) (Rosenfield and Bielefeldt 1993). The species may compete, to a limited extent, with sharp-shinned hawks (*Accipiter striatus*) and northern goshawks. Although the northern goshawk is a potential competitor, niche overlap is reduced by using different habitats and by using different species of prey, different sizes of prey and by foraging in different zones (Bosakowski *et al.* 1992). The Cooper's hawk is more of a generalist, having a greater niche width than both sharp-shinned hawks and goshawks.

Status and Distribution

Cooper's hawks breed from British Columbia eastward to Nova Scotia and southward to northern Mexico and Florida (AOU 1983). In California, the Cooper's hawk is a breeding resident throughout most of the wooded portion of the state. It breeds in the southern Sierra Nevada foothills, New York Mountains, Owens Valley, and throughout other scattered areas in southern California. Its breeding range is from sea level to above 2,700 meters. Cooper's hawks are present year-round nearly throughout California, except along the Colorado River and in desert areas, where the species no longer breeds (Garrett and Dunn 1981). Although the Cooper's hawk breeds in southern California and has a year-round resident population, it also occurs in the region as a spring and fall migrant and as a winter resident (Garrett and Dunn 1981).

The Cooper's hawk was once considered a common nester throughout California and was described as "varyingly common, to even abundant (for a hawk) in autumn in favorable territory" (Grinnell and Miller 1944). Southern California's breeding population reportedly has been "much reduced in recent decades, especially in lowland areas where much riparian woodland has been destroyed" (Garrett and Dunn 1981). A serious decline occurred in the 1970s during the nesting season probably due to eggshell thinning resulting from pesticides (Terres 1980). Since the banning of DDT, the species has thrived and recovered remarkably well. This species appears to be adapting to and nesting in the urban environment in areas with planted mature trees.

Threats and Conservation Needs

Habitat destruction, mainly in lowland riparian areas, due to urbanization and development is probably the main threat to the Cooper's hawk, although direct or indirect human disturbance at nest sites and the use of organochloride pesticides can also be detrimental (Remsen 1978, Rosenfield and Bielefeldt 1993, Boal and Mannan 1998). Collisions with cars have been documented, but the magnitude of this threat is unclear (Keran 1981).

Environmental Baseline

Cooper's hawks have been documented throughout the MSCP, including within Otay Ranch. The Wildlife Research Institute (WRI) conducted raptor monitoring within the MSCP Study Area from January 2001 through December 2003. WRI survey efforts included winter surveys and nesting surveys. WRI identified 47 nest/territories at 22 different sampling sites during the survey period (WRI 2005). There are 6.5 acres of modeled nesting habitat and 1,169.0 acres of modeled foraging habitat within the Project Area, of which approximately 3.0 acres of nesting and 511.9 acres of foraging habitat occur within the development footprint. Nesting modeled habitat for this species includes eucalyptus woodland and oak riparian forest. Foraging modeled habitat for this species includes chamise chaparral, cismontane alkali marsh, coastal sage scrub, disturbed chamise chaparral, disturbed coastal sage scrub, eucalyptus woodland, mulefat scrub, oak riparian forest, non-native grassland, and southern mixed chaparral.

A Cooper's hawk was observed flying overhead during biological surveys in 2014, but since much of the Project Area is likely used by this species, the observation was not mapped. There is some suitable nesting habitat in the southern willow scrub and eucalyptus within the Project Area. There are five small separate areas mapped as eucalyptus woodland throughout the Project Area, including one patch along Proctor Valley Road South. Two small polygons of southern willow scrub are mapped in the northern portion of the Project Area, within the Otay Ranch RMP Preserve in Planning Areas 16/19.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 "Species Evaluated for Coverage Under the MSCP" and will result in a net gain of 142.4 acres of modeled habitat from what was anticipated under MSCP for this Project. Direct impacts to nesting birds will be avoided through the implementation of mitigation measures B1-6 and BI-18 (Section 6.2 of the Amendment) which require 300-foot impact avoidance area around active nests. The Project would convey 634 acres of on-site foraging habitat and 3.4 acres of suitable nesting habitat for Cooper's hawk. The RMP will provide for management and funding in perpetuity that will allow for preservation and enhancement of the habitat on site. Combined, these measures will maintain the function of the MSCP Preserve, providing benefits to the Cooper's hawk.

Effects of the Action

There is no nesting habitat within the Amendment area; however, there are 45 acres of foraging habitat that will be lost. This loss will be offset through the conservation of additional habitat within Planning Area 16. The consolidation of the development and open space will maintain larger blocks of habitat and minimize edge effects relative to what was originally permitted under the MSCP. Therefore the Amendment will result in overall positive effects to Cooper's hawk.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that issuance of an amendment to the County's ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the Cooper's hawk. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 "Species Evaluated for Coverage Under the MSCP" and will result in a net gain of 142.4 acres from what was anticipated under the MSCP for this Project.
2. Indirect impacts and edge effects on suitable habitat for Cooper's hawk will be minimized through the implementation of the Preserve Edge Plan.
3. Cooper's hawk is a wide-ranging species. The Amendment area encompasses a small portion of the species' overall range and no nesting habitat; thus, the Amendment will not affect the overall population numbers, distribution, and reproduction.

Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)

Status of the Species

Listing Status

The southern California rufous-crowned sparrow is not listed under the Federal Endangered Species Act. It is a California Department of Fish and Wildlife species of special concern with a CNDDB rank of G5T3S3 which means the species is at very low risk of extinction range wide but the subspecies is at moderate risk of extirpation. *A. ruficeps* (full species) is also on the Audubon Society's state watch list for California.

Species Description

Southern California rufous-crowned sparrow is a small bird with a small bill. The wing and tail are longer and the bill smaller than the similar *A. r. ruficeps*. *A. r. canescens* are distinguished by the distinctly bicolored bill with yellow-orange lower mandible. Upper parts are chestnut with grayish-buff streaking and the underparts are brown with a grayish wash (Collins 1999).

Habitat Affinities

Optimal habitat for the southern California rufous-crowned sparrow consists of sparse, low brush or grass, on hilly slopes preferably interspersed with boulders and rock outcrops (Grinnell and Miller 1944; Bent 1968; Unitt 1984; Ehrlich *et al.* 1988; Root 1988). Some observers have noted a preference for south-facing slopes and an affinity for California sagebrush (*Artemisia californica*) over other vegetative types (Grinnell and Miller 1944; Bent 1968; Root 1988). It also colonizes

grass that grows as a successional stage following brush fires (Unitt 1984) and may occur on steep, grassy slopes without shrubs if rock outcrops are present (Zeiner *et al.* 1990).

Life History

The rufous-crowned sparrow is diurnally active throughout the year (Zeiner *et al.* 1990). All rufous-crowned sparrow activities are focused on and around the ground, usually in the area of dense vegetative cover (Grinnell and Miller 1944; Bent 1968; Root 1988). The southern California rufous-crowned sparrow forages on the ground in herbage and in leaf-litter beneath shrubs, gleaning from the ground and foliage. It also gleans the foliage of live oak, foraging predominantly on insects during the breeding season. During other times of the year its diet includes seeds, grasses, and forb shoots (Bent 1968). Rufous-crowned sparrows are relatively secretive, seeking cover in shrubs, rocks, and grass and forb patches, concealing their nest on the ground at the base of a grass tussock or shrub or about 0.3 to 1 meter above the ground (Terres 1980). The nest is cuplike and made of twigs, bark strips, and grasses, and is lined with grasses and hair from deer and horses (Terres 1980). This species breeds from mid-March to mid-June with the peak of its breeding activity in May. Rufous-crowned sparrows are monogamous and breeding territories may occur in groups (Pemberton 1910). Clutch size is generally 2–5 eggs. Incubation is accomplished by the female only, but altricial young are tended by both parents (Harrison 1978). The rufous-crowned sparrow may occur in family groups postbreeding (Ehrlich *et al.* 1988). Home range in southern California is approximately 3.7 acres, with a coastal sage scrub territory averaging 2.0 acres (Bent 1968; Cody 1974). The species is not gregarious and is generally found in groups composed of no greater than five or six (Bent 1968) which exist in scattered metapopulations across patchy landscapes. Eggs and nestlings are preyed upon by snakes and small mammals (Bent 1968).

Distribution and Status

The rufous-crowned sparrow (species) is largely a resident species and occurs in central California, northcentral Arizona, southwestern New Mexico, southeastern Colorado, northwestern and central Oklahoma, south discontinuously to southern Baja California and mainland Mexico. East of the Rocky Mountains, it winters from central and southern Oklahoma to northern Texas and south into Mexico (Terres 1980). The current range and distribution of the southern California subspecies is extremely restricted to a narrow belt of semiarid coastal sage scrub and sparse chaparral from Santa Barbara south to the northwestern corner of Baja California, Mexico. (Grinnell and Miller 1944; Bent 1968; Unitt 1984; Zeiner *et al.* 1990).

Fragmentation of suitable scrub habitat adversely affects the relative abundance of rufous-crowned sparrows. They are more abundant in larger patches of suitable coastal scrub habitat than in smaller, more fragmented patches (Bolger *et al.* 1997). From 1966 to 1991 there were significant increases in southern California (5.0 percent), Arizona (3.1 percent), and the entire western U.S. (3.6 percent). However, between 1982 and 1991 populations declined in Texas (-8.1 percent) and the Osage Plain–Cross Timbers physiographic region (-5.8 percent). The overall trend for U.S. populations between 1966 and 1995 was stable (Collins 1999). These data are for *Aimophila ruficeps*. No data are available specifically for the coastal subspecies, *A. r. canescens*.

Threats and Conservation Needs

The loss of coastal sage scrub for agriculture and urban development has reduced the available habitat for this resident species (Bent 1968; Unitt 1984). Other stressors include a range of avian, mammalian and reptilian predators, both native and domestic, that find the ground-nesting habit of this bird an easy target (Bent 1968). Bolger *et al.* (1997) studied the 20 most common bird species within a 260 square-kilometer area of coastal San Diego County in relation to edge and fragmentation sensitivity. The rufous-crowned sparrow was found to be one of four species whose abundance is most reduced by presence of edges/fragmentation.

Environmental Baseline

The specific status of the rufous-crowned sparrow within the Subarea Plan area is not well known; however, populations are found in the southeastern and northeastern portions of the Subarea Plan area. As of 2011, approximately half of the point locales and habitat targeted for conservation had been conserved within the MSCP Preserve (Service *et al.* 2012). Almost 1,000 acres of habitat has also been conserved outside of the planned Preserve. There are 1,154.6 acres of modeled nesting/foraging habitat within the Project Area including 507 acres within the development footprint. Nesting and foraging modeled habitat for this species includes chamise chaparral, disturbed chamise chaparral, coastal sage scrub, disturbed coastal sage scrub, mulefat scrub, non-native grassland, and southern mixed chaparral. Southern California rufous-crowned sparrow was not observed in PV2, PV3, or the access road development footprint. Five individual southern California rufous-crowned sparrows were observed/detected in various locations in the Project Area. All locations were observed within Planning Area 16 either within the Preserve or the R14 conservation easement.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will result in a net gain of 142.2 acres of modeled habitat from what was anticipated under MSCP for this Project. Direct impacts to nesting birds will be avoided through the implementation of mitigation measures B1-6 and BI-18 (Section 6.2 of the Amendment) of the which require 300-foot impact avoidance area around active nests. The Project would convey approximately 624 acres of modeled habitat for the southern California rufous-crowned sparrow that will be added to a large block of existing conservation to the north and east where significant amounts of suitable habitat are also conserved (Dudek 2020). The Otay Ranch RMP provides for management and restoration of contiguous and/or interconnected patches of coastal sage scrub and maritime succulent scrub. Additionally, time-of-year restrictions to prevent impacts to breeding California gnatcatchers and cactus wrens will also prevent or minimize impacts to nesting rufous-crowned sparrows. Combined, these measures will maintain the function of the MSCP Preserve, providing benefits to the southern California rufous-crowned sparrow.

Effects of the Action

None of the recorded individuals were observed within the Amendment area. Based on observations in coastal sage scrub habitat elsewhere in the Project Area, there is a high potential for this species to occur in these parcels. Approximately 42.8 acres of modeled habitat for this species, would be impacted by development in PV2 and a portion of PV3, while the access road would impact 2.2 acres. Therefore, we anticipate that there could be direct impacts to this species, primarily in the form of habitat destruction. Indirect impacts and edge effects on suitable habitat for southern California rufous-crowned sparrows are described in Section 4.2 of the Amendment and will be minimized through the implementation of the Preserve Edge Plan.

An additional 187.2 acres of modeled habitat designated as “Take Authorized” within Planning Area 16 would be added to the Preserve; thus, there will be a net gain of 142.2 acres from what was anticipated under the MSCP for this Project. The RMP will provide for management and funding in perpetuity that will allow for preservation and enhancement of these resources.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service’s biological opinion that issuance of an amendment to the County’s ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the southern California rufous-crowned sparrow. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will result in a net gain of 142.2 acres from what was anticipated under the MSCP for this Project.
2. Indirect impacts and edge effects on suitable habitat for rufous-crowned sparrows will be minimized through the implementation of the Preserve Edge Plan.
3. Rufous-crowned sparrows occur across the southwest. The Amendment area encompasses a small portion of the species’ overall range; thus, the Amendment will not affect the overall population numbers, distribution, and reproduction.

Golden Eagle (*Aquila chrysaetos*)

Status of the Species

Listing Status

The golden eagle is not listed under the Federal Endangered Species Act. It is federally protected under the Bald and Golden Eagle Protection Act and is considered a California Department of Fish and Wildlife species of special concern.

Species Description

Aquila chrysaetos is large eagle, 30–41 inches in length with a 76–92 inches wingspan, large bill and feather legs extending to talons. It is shaped like a hawk, but when soaring the wingspan is noticeably greater. Adults are dark brown overall with a golden nape and wingtips that tend to be darker brown. The underside of the tail may have a white base. Immature *A. chrysaetos* appear similar in color to adults, but with a large white patch at the base of the primaries and a white tail with a dark terminal band.

Habitat Affinities

Range-wide, golden eagles occur locally in open country (e.g., tundra, open coniferous forest, desert, barren areas), especially in hills and mountainous regions (AOU 1998). Within southern California, the species “favors grasslands, brushlands, deserts, oak savannas, open coniferous forests, and montane valleys. It uses rolling foothills and mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, and cliffs and rock outcrops. Habitat is typically rolling foothills, mountain areas, sage-juniper flats, and desert within its range in California (Zeiner *et al.* 1990). The species requires a large expanse for foraging and suitable nest sites in the form of cliffs or large trees. Nesting is primarily restricted to rugged, mountainous country” (Garrett and Dunn 1981). Secluded cliffs with overhanging ledges and large trees are used for cover (Zeiner *et al.* 1990). Thus, the golden eagle uses a variety of habitats: nesting in cliffs or trees and rugged terrain and foraging over plains, grasslands, or low and open shrublands (Scott 1985).

Golden eagles are typically not found in heavily forested areas or on the immediate coast and are rarely detected in highly developed environments (e.g., Grinnell and Miller 1944; Garrett and Dunn 1981). During the winter season, the golden eagle is found in shrub-steppe vegetation and may use wetlands, river systems and estuaries in the coastal areas (Terres 1980).

Life History

The golden eagle exhibits year-long, diurnal activity (Zeiner *et al.* 1990). The eagle spends most of the day perched (78 to 85 percent of the day) and the rest of the day in flight (Collopy and Edwards 1989).

The golden eagle eats mostly lagomorphs and rodents; it also takes other mammals, birds, reptiles, and some carrion (Olendorff 1976). The diet is the most varied in the non-breeding season. The food supply for this species includes medium to large mammals and birds; a broad expanse of open country is required for foraging (Johnsgard 1990). The golden eagle tends to be an opportunistic forager, taking a combination of medium-sized vertebrate prey and carrion (Olendorff 1976). It needs open terrain for hunting; grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats. It soars 98-297 feet above the ground in search of prey, or makes low, quartering flights, often 23-26 feet above ground. Occasionally it searches from a perch and flies directly to the prey (Carnie 1954). Sometimes it pirates food from other predators. Hunting in pairs is apparently common, with one member of the pair chasing the prey to exhaustion and the other swooping down to kill the prey (Terres 1980). Foraging takes place

over large areas of grassland and open chaparral or coastal sage scrub as well. In parts of Idaho, eagles have been shown to select areas with abundant and large shrub patches, which provide preferential jackrabbit habitat (Marzluff *et al.* 1997).

Nesting is primarily restricted to rugged, mountainous country, with nesting occurring within large trees or on cliffs (Garrett and Dunn 1981; Johnsgard 1990). Rugged, open habitats with canyons and escarpments are used most frequently for nesting. Pairs may build more than one nest and attend them prior to laying eggs (McGahan 1968). It nests on cliffs of all heights and in large trees in open areas (Call 1978). Nest locations tend to be more closely associated with topographic heterogeneity than with a particular vegetation type. Approximately 85 percent of all nest areas overlook or are on the opposite side of the ridge from large valleys or areas of relatively low topographic heterogeneity and open vegetation (Scott 1985). Alternative nest sites are maintained, and old nests are reused. Each pair can have up to 10 nests, but only 2-3 are used in rotation. Some pairs use the same nest each year, while others use alternate nests year after year, and still others apparently may nest only every other year. The same nest may even be used by succeeding generations of eagles (Terres 1980). It builds a large platform nest, often 10 feet across and 3 feet high, of sticks, twigs, and greenery. It breeds from late January through August, with a peak in March through July. The clutch size is 1-3, usually 2 (McGahan 1968). Eggs are laid in early February to mid-May. The young birds hatch several days apart; thus, the older, stronger eaglets often kill their smaller siblings, and the parents do not interfere (Terres 1980). Incubation lasts 43-45 days (Beebe 1974), and the nestling period usually is 65-70 days. Parental care continues into August and family groups remain together into November (Scott 1985).

The breeding success of undisturbed pairs, as estimated by Brown and Amadon (1968), may vary from 0.5 to 1.4 young per pair per year with an average of 1.4 in Montana. The young bird does not breed for about 4 years, and the average expectation of life of adults in the wild, assuming a 75 percent loss of young before maturity, is approximately 10 years (Brown and Amadon 1968). In the wild, they likely live to at least 20 years (Brown and Amadon 1968).

After the young have flown, they remain in the vicinity of the nest for about 2 weeks and thereafter follow the parents away from the site (Brown and Amadon 1968). In some populations, they are thought to be dependent on parental assistance for about 3 months after learning to fly, and normally separate from the parents about October. The young often appear near the nest site in the early part of the following breeding season, and immature golden eagles sometimes frequent a nest site for several years before they finally breed there. The site then used may be old or new or one that has been unoccupied for many years (Brown and Amadon 1968).

Home range is probably the same as territory (Zeiner *et al.* 1990). The size of the home range is related to prey density and availability, and the openness of terrain. Territory size is estimated to average 36 square miles in southern California (Dixon 1937; Terres 1980), and 48 square miles in northern California (Smith and Murphy 1973). Although total home range can be very large, individuals tend to focus on a smaller core area within the total home range (Marzluff *et al.* 1997). Golden eagles defend nest areas from conspecifics and appear to defend part of their home range; however, there can be substantial overlap between the home ranges of adjacent pairs (Scott 1985).

Status and Distribution

The golden eagle has a holarctic distribution, extending as far south as north Africa, Arabia, and the Himalayas in the Old World, and Mexico in North America. It is a partial migrant within this distribution, with the northern breeding birds migrating south in winter, while those of more temperate climates remain all the year round (Brown and Amadon 1968). Golden eagles in North America breed locally from northern Alaska eastward to Labrador southward to northern Baja California, northern Mexico, and Maine. The species winters from southern Alaska and southern Canada southward through the breeding range. Overall, the golden eagle population is likely stable, although some individual Bird Conservation Regions maybe declining (Milsap *et al.* 2013).

The golden eagle was formerly considered common within suitable habitats in California (Grinnell and Miller 1944), but the species was more recently judged to be uncommon throughout much of California (Garrett and Dunn 1981). As is intimated above, the golden eagle avoids settled areas and, therefore, has almost certainly declined in San Diego County and California as a whole within the past century due to loss of large unfragmented habitat areas (Grinnell and Miller 1944; Unitt 2004).

Within California the distribution, abundance, and seasonality of the golden eagle is described as an uncommon permanent resident and migrant throughout California, except for the center of the Central Valley. Perhaps it is more common in southern California than in northern regions. It ranges from sea level up to 11,500 feet (Grinnell and Miller 1944). Golden eagles are sparsely distributed throughout most of California, occupying primarily mountain and desert habitats. Approximately 500 breeding pairs are estimated to nest in California. They are mostly resident, but may move downslope for the winter, or upslope after the breeding season. Some individuals migrate into California for the winter (Zeiner *et al.* 1990).

The golden eagle population in San Diego County is one of the best-studied populations in North America, with nesting pairs monitored and documented nearly continuously since 1895. WRI has monitored eagles within the MSCP since the 1990s. In 2010, Bitner *et al.* estimated a 56 percent reduction of golden eagles in San Diego County. Within MSCP, they estimated that 32 pairs formerly occupied the San Diego MSCP. When the MSCP Plan was finalized, 11 territories were listed as occurring within, or partially within the boundaries of MSCP. Of these 11, 9 were considered active (evidence of occupancy/breeding within the territory) at the time and 7 were predicted to remain viable with implementation of MSCP. An additional 4 territories were noted in WRI documents as being extant but not active at the time (Figure 9). All of these were predicted to remain viable. Currently there are 7 active territories within or partially within the planning boundary for the MSCP (Figure 10).

Beginning in the fall of 2014, a multi-year survey and tracking program was initiated and developed through a collaborative effort between the U.S. Geological Survey (USGS), the Service, the Department, and the SDMMP to determine the status of the golden eagle in western San Diego County. This study is on-going; however, preliminary results of this study are available on the SDMMP website.

Threats and Conservation Needs

Threats to golden eagles include urbanization and human use of preserves that disturb nest sites and nesting pairs, ravens preying on young in the nest, and direct mortality from powerline and wind power facilities (Kochert *et al.* 2002; Unitt *et al.* 2004; Bittner *et al.* 2010). Electrocution on power lines is now the biggest source of mortality (Unitt *et al.* 2004). Secondary poisoning by scavenging prey killed by rodenticides has also been documented in San Diego County (Unitt *et al.* 2004). Altered fire regimes may affect nest site stability/nest destruction, change prey distributions, and potentially cause direct mortality. Management and monitoring are needed to protect nest sites from human disturbance and enhance foraging habitat.

Environmental Baseline

Within southern California, the golden eagle favors grasslands, brushlands, deserts, oak savannas, open coniferous forests and montane valleys. In 2010, the WRI documented 11 active territories within the MSCP subregion; however, the extent of the territories is not clearly understood, and no analysis has been conducted to determine the status of foraging habitat. Within the County's Subarea Plan, the South County Segment contains large blocks of conserved lands with open habitat suitable for nesting and foraging golden eagles. There are 5 active and 1 inactive golden eagle nesting territories known to occur in the South Segment of the County's Subarea Plan: Cedar Canyon, Copper Canyon (aka Butteweg Canyon, Otay Mountain), Lyon's Peak, O'Neal Canyon, Rancho San Diego (aka San Miguel Mountain), and Tecate Peak (aka Marron Valley). Successful breeding has not been observed within the Rancho San Diego territory since 2004, when one young was observed; however, preliminary data collected by the USGS (2016) indicates that the site has been used for foraging by golden eagles that were included in their study, including the adjacent Cedar Canyon male (Figure 11). In addition, un-tagged golden eagles have been observed on numerous occasions by other local biologists within the valley (John Martin, personal communication October 20, 2020). The encroachment of development from the west may, in part, be the reason for the lack of recent breeding in the territory as well as the loss of the historic nest site during the 2007 Harris Fire.

There are 1,155 acres of modeled foraging habitat within the Project Area, including 45 acres subject to the Amendment (PV2, PV3, and the access road). Approximately 531 acres of this habitat will be directly impacted by the Project. Modeled foraging habitat for this species includes coastal sage scrub (including disturbed and *Baccharis*-dominated), chamise chaparral (including disturbed), southern mixed chaparral, and non-native grassland.

Consistency with MSCP

The Project is consistent with MSCP with respect to its location, acres of impact to eagle foraging habitat (531), and conservation of eagle habitat (624). The MSCP conservation analysis for the golden eagle (MSCP Table 3-5) identified that 53 percent of potential foraging/nesting habitat in the plan area would be conserved and that 4 of 11 active nesting territories may not remain viable based, in part, on the potential for greater than 20 percent loss of foraging habitat within their territories. The Project Area is located within a portion of the Rancho San Diego

territory that was mapped for the MSCP and the Project is conserving 54 percent of the foraging habitat on site. The analysis for the MSCP found that less than 10 percent of the Rancho San Diego nesting territory would be impacted and concluded that the territory should remain viable (MSCP Table 3-5). This conclusion may have been wrong, given what we now know about golden eagles and their avoidance of the urban edge (Tracey *et al.* 2020).

As stated above, eagles have not been observed breeding within this territory since 2004, which may be the result of numerous factors including fire, drought, and new urban development to the west in the City of Chula Vista. Because the territory has not been occupied by a territorial pair for the last 15 years, abandonment of the territory cannot be attributed to this Project. A recent study by USGS indicates that golden eagles in San Diego avoid urban areas, with an average buffer of 4,216 feet (Tracey *et al.* 2020); thus, in addition to the direct loss of habitat from the development footprint, there may also be a reduction of eagle activity within an estimated 3,812 acres around the development (Figure 11). Therefore, the Project may reduce the likelihood for the Project Area to support a nesting pair in the future and reduce the area available for foraging by non-territorial eagles and the adjacent Cedar Canyon pair, which has been observed in the valley by USGS. Despite the potential for greater indirect effects to eagle habitat than were anticipated in the MSCP, the Project and conservation strategy are consistent with the MSCP.

The Project would convey approximately 624 acres of modeled habitat for golden eagles, which will be added to a large block of existing conservation to the north and east where significant amounts of suitable foraging habitat are also conserved (Dudek 2020) and is consistent with the conservation analysis described above. The RMP will provide for management and funding in perpetuity that will allow for preservation and enhancement of these resources to benefit golden eagles.

Effects of the Action

Approximately 45 acres of foraging habitat within the Amendment area will be impacted by the proposed development. An additional 187.2 acres of foraging habitat designated as “Take Authorized” within Planning Area 16 would be added to the Preserve; thus, there will be a net gain of 142.2 acres conserved rather than developed from what was anticipated under the MSCP for this Project.

The golden eagle could be impacted by indirect effects both inside and outside of the Preserve. These generally include the indirect effects mentioned in the “General Indirect Effects” section, above. This species may also be particularly susceptible to disturbance from humans. Table 3-5 of the MSCP Subregional Plan requires that area-specific management directives (ASMDs) include measures to avoid disturbance and monitoring of nest sites. Therefore, it is important that ASMDs for the Preserve areas near San Miguel Mountain include the required measures and that these measures are fully implemented. As a result of the measures incorporated into the County’s Subarea Plan and the MSCP Subregional Plan, we anticipate few indirect impacts to this species’ nesting areas. The consolidation of development within Village 14 and the removal of development from Planning Area 16 reduces the area affected by the urban edge from the

original development footprint included in the Subarea Plan. The 45 acres of impacts included in the Amendment are all contiguous with the approved footprint for Village 14 and do not bulge out the development footprint in a manner that will substantially change the encroachment of urban development in the Preserve. Also, the addition of Planning Area 16 to the Preserve reduces the area affected by the urban edge. Therefore, the Amendment will result in fewer direct and indirect effects to foraging habitat than what was anticipated under MSCP, which should increase the suitability of the habitat for eagle foraging.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that issuance of an amendment to the County's ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the golden eagle. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 "Species Evaluated for Coverage Under the MSCP" and the Amendment will result in a net gain of 142.2 acres from what was anticipated under the MSCP for this Project.
2. No take of golden eagles is anticipated as a result of the Amendment because the territory is not currently occupied.
3. Indirect impacts and edge effects on suitable habitat for golden eagles will be minimized through the implementation of the Preserve Edge Plan.
4. Golden eagles are a wide-ranging species. The Amendment area encompasses an extremely small portion of the species' overall range; thus, the Project will not affect the overall population numbers, distribution, and reproduction.

Western Burrowing Owl (*Athene cunicularia hypugaea*)

Status of the Species

Listing Status

The burrowing owl is not listed under the Federal Endangered Species Act; however, the species is considered a California Department of Fish and Wildlife species of special concern.

Species Description

The burrowing owl is a small, ground-dwelling owl. The burrowing owl underwent several taxonomic changes until placed in its current genus *Athene* (AOU 1998). Two subspecies of burrowing owl occur in North America: the western burrowing owl (*A. c. hypugaea*) and the

Florida burrowing owl (*A. c. floridana*) (Klute *et al.* 2003). Females are generally darker than males overall, particularly in worn plumage (Haug *et al.* 1993).

Habitat Affinities

Burrowing owls use a variety of habitats in California, including native and non-native grasslands, lowland scrub, agricultural lands (particularly rangelands), fallow fields, open developed areas, agricultural areas, drainage features, coastal dunes, desert floors, and some disturbed areas (Haug *et al.* 1993). They require large, sparsely vegetated, open expanses on gently rolling or level terrain. The presence of a nest burrow appears to be the necessary habitat requirement for the western burrowing owl. They typically require a mammal burrow [e.g., ground squirrels (*Spermophilus beecheyi*)], but when these are not available they have been known to use pipes and natural rock and lava cavities, as well as artificial burrows constructed in support of management efforts for this subspecies. Currently, little is known about specific habitat requirements in wintering areas (Klute *et al.* 2003).

Life History

The burrowing owl is an opportunistic forager, primarily feeding on arthropods, small mammals, birds, amphibians, and reptiles (Haug *et al.* 1993). The burrowing owl's diet varies by season, with vertebrates occurring more commonly in the winter diet and arthropods in the summer diet. The burrowing owl breeds from March through August, depending on the location of its breeding grounds. Typically, this species uses old burrows dug by mammals such as ground squirrels. Burrowing owls lay 6 to 11 eggs per clutch. Young emerge from the burrow at 2 weeks of age, forage for themselves by 4 weeks, and can fly by 6 weeks (Zarn 1974). Burrowing owl families often switch burrows every 2 weeks when the young are 3 to 4 weeks old. They remain as a loose-knit group until early fall when the young begin to disperse to nearby burrows (Haug *et al.* 1993; Dechant *et al.* 1999). Home ranges vary from 0.1 to 4 acres, with an average distance between burrows of 435 feet (Thomsen 1971; Martin 1973). Territory size is directly proportional to habitat quality and burrow availability.

Predators of burrowing owls include coyotes, American crows, domestic dogs and cats, prairie falcons (*Falco mexicanus*), red-tailed Swainson's hawk (*Buteo swainsoni*), and ferruginous hawks (*Buteo regalis*) (Martin 1973). Collisions with vehicles are also a common cause of mortality as the owls habitually sit and hunt on roads at night (Bent 1937, Ratcliffe 1987).

Status and Distribution

The burrowing owl breeds from southern interior British Columbia (nearly extirpated), southern Alberta, southern Saskatchewan (extirpated from a portion of the province), and southern Manitoba (extirpated from a portion of the province), south through eastern Washington, central Oregon, and California to Baja California, east to western Minnesota, northwestern Iowa, eastern Nebraska, central Kansas, Oklahoma, eastern Texas, and Louisiana, and south to central Mexico. The winter range is similar to the breeding range, except that most burrowing owls vacate the northern areas of the Great Plains and Great Basin (Haug *et al.* 1993).

In California, burrowing owls are restricted to the Central Valley extending from Redding south to the Grapevine, east through the Mojave Desert and west to San Jose, the San Francisco Bay area, and south to San Diego and the Sonoran desert (Grinnell and Miller 1944). Historically, it was a resident in the open lowland areas throughout southern California (Garrett and Dunn 1981), but population numbers have markedly declined in recent decades (Zeiner *et al.* 1990). The species appears to be threatened with extirpation from central western and southern California (DeSante and Ruhlen 1995). Statewide surveys conducted from 1986 to 1991 showed up to a 52 percent decrease in population groups and up to a 27 percent decrease in the number of breeding pairs throughout the State (DeSante *et al.* 1997, Klute *et al.* 2003). The burrowing owl has been severely reduced as a breeding species in the five coastal counties of southern California (Comrack and Mayer 2003).

Threats and Conservation Needs

The primary threats to burrowing owls include the loss and fragmentation of their habitat due to intense agricultural and urban development and habitat degradation due to declines in populations of colonial burrowing mammals (Haug *et al.* 1993; Dechant *et al.* 1999; DeSante *et al.* 2007; Gervais *et al.* 2008). Elimination of burrowing rodents through control programs has been a primary factor in the recent and historical decline of burrowing owl populations throughout the United States (Dechant *et al.* 1999; Murphy *et al.* 2001; Klute *et al.* 2003). Use of insecticides and rodenticides in burrowing owl habitat has also contributed to this species' decline. These chemicals not only reduce their food supply but may also be toxic to the owls, reducing their reproductive success and overall health (Klute *et al.* 2003). Other threats include the crushing of owl burrows by heavy equipment and ground maintenance machinery, collisions with vehicles (Haug *et al.* 1993), and shooting. Owl survival can also be adversely affected by disturbance from humans and pets (Thomsen 1971; Comrack and Mayer 2003).

Given the apparent rarity of the species in coastal southern California, conservation of this species depends on the protection and management of extant burrowing owl colonies and populations in the region. Prudent management and conservation measures should enable or drive the increased growth of individual colonies by providing for additional or enhanced foraging and nesting habitat to maximize reproductive success and facilitate the expansion of the current distribution. As this species appears to have evolved as a colonial species in association with burrowing mammal communities, protection of these communities is essential. Burrowing owl colonies should also be buffered from human disturbance as burrowing owls are sensitive to human impacts. Active management, including the construction of artificial burrows, and the preservation of significant foraging areas are necessary for the burrowing owl to persist long term in the urban landscapes of southern California.

Environmental Baseline

Within San Diego County, burrowing owls breed in only a few locations, predominately on Otay Mesa. The San Diego Zoo Institute for Conservation Research has been working with the Wildlife Agencies and other conservation partners to re-establish a breeding colony on the Rancho Jamul Ecological Reserve and are currently evaluating other sites within the MSCP

Preserve for the next potential restoration site. There is minimal suitable habitat onsite due to the clay soils and dominance of shrub habitat types and the Project Area is not targeted for establishment of a burrowing owl colony within the MSCP. Focused surveys for burrowing owl were conducted within the Project Area in 2014 following the guidelines in the Staff Report on Burrowing Owl Mitigation (Department 2012). During these surveys, no burrowing owls or sign were observed. In 2015, burrowing owl sign consisting of white wash, feathers, and pellets were observed at one location in the central portion of the Project Area during rare plant surveys. Suitable habitat within the Project Area includes 115 acres of non-native grassland and open areas of coastal sage scrub (including disturbed) that contain burrows, burrow surrogates, or fossorial mammal dens. However, based on the limited observation of burrowing owl sign and the lack of observations during focused surveys in 2014, this species likely does not occur regularly within the Project Area. The loamy/cobbly soils underlying much of the Project Area, in particular most of the area within the development footprint, are not ideal for ground squirrel burrowing. This suggests that within the Project Area, the distribution and abundance of California ground squirrels (*Otospermophilus beecheyi*), a primary source of burrows for burrowing owls, is limited. Approximately 72 acres of potential habitat will be impacted by the Project; however, none of it occurs within the Amendment area.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP”. The Project will conserve 29.6 acres of habitat for the species. In addition, the Project is conditioned with conducting a preconstruction survey for burrowing owl (see M-BI-13 in Section 5.2) to ensure there are no impacts to individuals during construction. The RMP will provide for management and funding in perpetuity that will allow for preservation and enhancement of the conserved resources. Combined, these measures will maintain the function of the MSCP Preserve, providing benefits to the burrowing owl.

Effect of the Action

There is no suitable habitat for burrowing owls within the Amendment area, nor were any owls observed. Therefore there are no impacts to this species from the Amendment.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service’s biological opinion that issuance of an amendment to the County’s ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the burrowing owl. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP”.

2. There is minimal suitable habitat on site due to the clay soils and dominance of shrub habitat types and no direct impacts are anticipated to individual owls, therefore the Amendment will not affect the overall population numbers, distribution, and reproduction.

Coastal California Gnatcatcher (*Poliophtila californica californica*)

Status of the Species

Listing Status

The Service listed the gnatcatcher as threatened on March 30, 1993 (58 FR 16742). In September 2010, the Service completed a 5-Year Review addressing the status of the gnatcatcher (Service 2010) and recommended no change to the listing status of the species.

On June 11, 2014, we received a petition requesting the gnatcatcher be delisted. Based on our review of the information provided, we initiated a status review on December 31, 2014 (79 FR 78778). After reviewing the available information, the Service determined the petitioned action was not warranted and confirmed the species continues to meet the definition of a threatened species under the Act on August 31, 2016 (81 FR 59952). Please refer to these documents for detailed information on the gnatcatcher's species description, habitat affinities and life history.

Status and Distribution

The range of the gnatcatcher is coastal southern California and northwestern Baja California, Mexico, from southern Ventura and San Bernardino counties, California, south to near El Rosario, Mexico, at about 30 degrees north latitude (Service 2010). The northern and eastern limits of the coastal scrub vegetation communities used by the gnatcatcher are largely bound by mountainous areas, while the southern limit is defined by the transition to the Vizcaíno desert. Atwood and Bontrager (2001) estimated approximately 94 percent of the gnatcatchers in the United States are found in Orange, western Riverside, and San Diego counties. Relatively isolated populations also remain in portions of its former range in Los Angeles, San Bernardino, and southern Ventura counties. The current overall range is shown in Figure 1 of the 12-Month Finding (81 FR 59954).

Gnatcatchers were considered locally common in the mid-1940s, but they had declined substantially in the United States by the 1960s (Atwood 1980). Throughout the 1980s, researchers continued to observe declines in gnatcatcher populations and their habitat (Atwood 1980; Garrett and Dunn 1981; Unitt 1984). Although rigorous population estimates are lacking, by the early 1990's Atwood (Atwood 1992) crudely estimated the maximum U.S. population was likely less than about 2,000 pairs by extrapolating observed bird densities across an estimate of the remaining suitable undeveloped habitat within the U.S. range.

During 2002, Winchell and Doherty (2008) performed point count surveys to directly estimate there were 1,324 gnatcatcher pairs (95 percent Confidence Interval 976–1,673) within a 111,006-acre portion of the U.S. range in Orange and San Diego Counties. Since that time, the Service has coordinated two range wide surveys on conserved lands and military installations within the United States, with the results from the most recent 2020 survey not yet analyzed.

Instead of estimating abundance, these surveys focus on estimating the proportion of modeled suitable habitat that is occupied by gnatcatchers, and measuring environmental variables associated with habitat occupancy and local population colonization and extinction dynamics. Results from the 2016 regional survey effort (Kus *et al.* 2017) indicate that within the U.S. portion of the range, about 23 percent of the modeled suitable habitat is occupied by the gnatcatcher, and that certain environmental attributes, such as shrub cover, shrub height, presence of bare ground and time since fire are positively associated with gnatcatcher occupancy, while other environmental attributes, such as grass and herbaceous cover, distance from the coast and elevation are negatively associated with gnatcatcher occupancy. At the time of listing in 1993, we (Service 1993) estimated about 2,800 pairs occurred in Baja California. We are not aware of any recent estimates or monitoring of gnatcatcher populations in Baja California.

Threats and Conservation Needs

Although declines in numbers and distribution of the gnatcatcher have resulted from numerous factors, the most significant threat to the gnatcatcher, both past and present, is loss of habitat, primarily from urban development in the United States and agricultural development in Mexico (Service 2016a). The direct loss of habitat reduces the amount of breeding, sheltering, and foraging area available, thereby proportionally reducing the population size and overall reproductive capacity of the species. Fragmented habitats have reduced biological integrity due to the increased potential for human-generated disturbance. Within the U.S. portion of the range, we estimate 16 percent of coastal sage scrub is permanently protected and receives minimal human use; 35 percent is permanently protected but allows multiple uses including off-highway vehicle use or mining; and 49 percent has no assured protections preventing urban development (Service 2016b). Stressors on remaining habitat (e.g., recreational use, wildland fire, anthropogenic atmospheric pollutants, invasive species, and climate change) can lead to type conversion of gnatcatcher habitat from coastal sage scrub to annual grassland (Service 2016a).

Wildfire in particular is a major contributor because it promotes a feedback loop. That is, wildfire allows non-native grasses to outcompete re-growing native shrubs, which leads to an increase in non-native grasses, making the area more susceptible to wildfire. This process is then more likely to repeat, but with successively fewer native shrubs with each iteration. The number of wildfires has increased dramatically as urbanization (with its multitude ignition sources) has come into greater contact with open space areas. Thus, the threat of habitat type conversion has increased throughout the range of the coastal California gnatcatcher since listing (Service 2010).

Long-term management is required to address the numerous threats posed by the urban edge and ensure the persistence of the species. Some long-term management actions that will address identified threats include development and implementation of fire management plans, homeowner education programs (for residences adjacent to occupied habitat), predator control, cowbird trapping, routine invasive vegetation removal, limited public access in areas of high quality habitat, and control of irrigation water and other urban runoff adjacent to preserved habitat. Monitoring of the species distribution over time will assist in determining the effectiveness of management actions at reducing threats and will allow for management to be adapted in the event that threats have not been adequately reduced.

Development continues throughout the range of the gnatcatcher. However, the implementation of regional NCCP/HCPs in southern California has directed growth into certain areas, while establishing habitat preserves consisting of large “core” areas of gnatcatcher habitat and connecting “linkage” areas. About 12 regional habitat conservation plans in southern California are finalized, and once fully implemented, are anticipated to conserve hundreds of thousands of acres of gnatcatcher habitat in perpetuity.

Preserved habitat is managed for the benefit of the gnatcatcher, thereby reducing the magnitude of this threat since listing. Large Federal landholdings that support gnatcatcher habitat also contribute to core and linkage areas. These lands include Marine Corps Base Camp Pendleton, Marine Corps Air Station Miramar, Cleveland National Forest, and San Diego NWR. Habitat type conversion can affect all areas of habitat, even those areas otherwise considered preserved. Because habitat type conversion is a threat of high magnitude, particularly given the increasing occurrence of wildfire, additional time is needed to evaluate the adequacy of existing management programs for reducing this threat.

Status of the Gnatcatcher Critical Habitat

Listing Status

The Service published a final rule designating critical habitat for the gnatcatcher on October 24, 2000 (65 FR 63680). As a result of various lawsuits and court decisions, the Service re-proposed critical habitat on April 24, 2003 (68 FR 20228), and the final rule designating critical habitat was published on December 19, 2007 (Service 2007).

Critical Habitat Description

There are 11 designated critical habitat units for the gnatcatcher that include 197,303 acres of Federal, State, local, and private land in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties (Service 2007). Designated critical habitat includes habitat throughout the species’ range in a variety of climatic zones and vegetation types to preserve the genetic and behavioral diversity that currently exists within the species. The individual units contain essential habitat and help to identify special management considerations for the species. The proposed Project overlaps a small portion (7.8 acres) of Unit 1 (South San Diego County) which encompasses 14,898 acres. Unit 1 is located within MSCP in south San Diego County. Approximately half the unit is under Federal Ownership (San Diego NWR and BLM) and the other was privately owned at the time of the designation. Lands designated as critical habitat in this unit contain core populations of the species, sage scrub, and non-sage scrub habitats (PBFs 1 and 2), and areas providing connectivity between core populations and sage scrub. Lands in this unit are also located adjacent to the U.S./Mexico border, and populations located there serve to promote demographic and genetic interchange with populations in Mexico.

The PBFs of designated critical habitat for the coastal California gnatcatcher are those habitat components that are essential to support the primary biological needs of foraging, nesting, rearing of young, intra-specific communication, roosting, dispersal, genetic exchange, or sheltering (Service 2007). These include: (1) sage scrub habitats that provide space for individual

and population growth, normal behavior, breeding, reproduction, nesting, dispersal, and foraging; and (2) non-sage scrub habitats such as chaparral, grassland, and riparian areas, in proximity to sage scrub habitats that provide space for dispersal, foraging, and nesting.

Environmental Baseline

The Project Area encompasses 1,041.2 acres of modeled nesting/foraging habitat within the Project Area of which 466 acres are within the development footprint. Approximately 7.8 acres of designated critical habitat occur on-site, of which 3.6 is in the Preserve and 4.2 is in the development footprint. Nesting and foraging modeled habitat for this species includes chamise chaparral, disturbed chamise chaparral, coastal sage scrub, disturbed coastal sage scrub, mulefat scrub, and southern mixed chaparral. Focused surveys for gnatcatcher within the Project Area resulted in 29 gnatcatcher observations (note that because the surveys were “focused,” the surveyed area is not coterminous with the Project Area as a whole). The gnatcatcher observations consisted of 11 pairs (one with a pair of fledglings), two juveniles, and three lone males (Figure 12). Three pairs were also observed outside Project Area within adjacent Otay Ranch POM lands.

The majority of the observations were located within the southern portion of the Project Area associated with the Proctor Valley Road South and Proctor Valley Road Central development footprints. Three pairs were detected within the Otay Ranch RMP Preserve in the Village 14 development footprint. A lone male was observed within the Village 14 development footprint. One pair was detected within the development footprint of Planning Areas 16/19. Within the off-site improvement areas, three pairs, two juveniles, and one lone male were observed along the buffer for Proctor Valley Road South. Two pairs and one male were observed along the survey buffer for Proctor Valley Road Central. During the 2017 focused surveys in off-site improvement areas, two pairs were observed within the Department-owned land. Service designated critical habitat for coastal California gnatcatcher overlaps a very small portion of the east-central Project Area (Figure 5).

MSCP targeted the conservation of 73,859 acres of coastal sage scrub, including 44,254 acres within the County’s Subarea Plan and 65 percent of the known point locales. As of December 2019, over 45,000 acres of coastal sage scrub had been conserved (Habitrak 2020) within the Preserve plan wide. In addition, 8,445 acres of coastal sage scrub have been conserved outside of the Preserve.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will result in a net gain of 142.2 acres of modeled habitat from what was anticipated under MSCP for this Project. Direct impacts to nesting birds will be avoided through the implementation of mitigation measures B1-6 and BI-18 (Section 6.2 of the Amendment) which require 300-foot impact avoidance area around active nests. The Project would convey approximately 563 acres of modeled habitat for the gnatcatcher that will be added to a large block of existing conservation to the north and east where significant amounts of suitable habitat are also conserved (Dudek 2020).

Three pairs of gnatcatchers were observed within the lands to be conveyed. The Otay Ranch RMP provides for management and restoration of contiguous and/or interconnected patches of coastal sage scrub and maritime succulent scrub. Additionally, pre-construction surveys and time-of-year restrictions to prevent impacts to breeding gnatcatchers are a requirement of the Project (see Section 6.2 of the Amendment - Mitigation Measure M-BI-6). Combined, these measures will maintain the function of the MSCP Preserve, providing benefits to the gnatcatcher.

Effect of the Action

We anticipate that there could be direct impacts to this species, primarily in the form of harm due to habitat destruction. A total of 44.2 acres of modeled habitat and 4.2 acres of designated critical habitat for this species in the Amendment area would be impacted by of the Project. No gnatcatchers have been observed in this habitat. Several pairs were observed along the proposed re-alignment of Proctor Valley Road within the Cities of Chula Vista and San Diego. No recovery plan has been completed for coastal California gnatcatcher, so we are evaluating this Project relative to the general recovery goals of maintaining core populations of gnatcatchers and connectivity between populations. An additional 159 acres of modeled habitat within Planning Area 16 that were anticipated to be impacted under the MSCP would be added to the Preserve; thus, there will be a net gain of 114.8 acres from what was anticipated under MSCP for this Project. The RMP will provide for management and funding in perpetuity that will allow for preservation and enhancement of these resources. Combined, these measures will maintain the function of the MSCP Preserve and assist in recovery of the coastal California gnatcatcher by contributing to the conservation of a core population and maintaining connectivity to conserved lands north and south of the Project Area.

Indirect impacts and edge effects on suitable habitat for coastal California gnatcatcher are described in Section 4.2 of the Amendment and will be minimized through the implementation of the Preserve Edge Plan.

Effect on Critical Habitat

The Project will impact 4.2 acres of designated critical habitat. This is less than 0.02 percent of the overall designation for Unit 1. The majority of this impact, 4.1 acres, is located within the northwestern portion of the Project Area within the Village 14 development footprint and is dominated by chamise chaparral (PBF 2). The remaining 0.1 acre of impact is located within the City of San Diego Cornerstone lands and consists of coastal sage scrub (PBF 1). As stated in the final rule for Revised Designation of Critical Habitat for the Coastal California Gnatcatcher, this species is likely restricted to coastal sage scrub vegetation; however, availability of non-sage scrub areas (including chaparral) is essential during certain times of the year, particularly during drought conditions, for dispersal, foraging, or nesting (50 CFR Part 17). The primary function of Unit 1 of critical habitat is to support persistent populations of coastal California gnatcatchers and provide for connectivity and genetic interchange among core populations. The impacts from the Project will occur primarily along the southern edge of Unit 1 and will be primarily to non-breeding habitat. Therefore, the Project will not affect the ability of Unit 1 to support a persistent population of gnatcatchers, and because substantial areas of undeveloped open space will remain

to the north and west, Unit 1 will continue to provide for connectivity and genetic interchange among core populations. Impacts to 4.2 acres of designated critical habitat will be offset by conserving 3.6 acres of designated critical habitat and providing 114.8 acres of modeled habitat beyond what was anticipated under the MSCP for this Project. Although the 114.8 acres of additional conserved habitat is outside gnatcatcher critical habitat, it is adjacent to Unit 1 and will benefit the conservation function of this unit by maintaining connectivity and opportunities for genetic interchange among core populations.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that issuance of an amendment to the County's ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the coastal California gnatcatcher or destroy or adversely modify designated critical habitat for this species. We base these conclusions on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 "Species Evaluated for Coverage Under the MSCP" and will result in a net gain of 114.8 acres from what was anticipated under MSCP for this Project.
2. Conservation measures proposed as part of the Project will avoid the potential for loss of active nests and the wounding or killing of adult and juvenile gnatcatchers during vegetation clearing and construction.
3. Coastal California gnatcatchers occur across southern California. The Amendment area encompasses a small portion of the species' overall range and no birds were detected within the area to be impacted; thus, the Amendment will not affect the overall population numbers, distribution, and reproduction.
4. The loss of 4.2 acres of designated critical habitat for coastal California gnatcatcher within Unit 1 is not expected to appreciably diminish the value of the critical habitat as a whole to the conservation of the species since it is less than 0.02 percent of Unit 1, is located along the edge of the designation, and will not substantially impact the function of Unit 1 with respect to the stated purpose of the Unit, which is to support persistent populations of coastal California gnatcatchers and provide for connectivity and genetic interchange among core populations.

Western bluebird (*Sialia mexicana*)

Status of the Species

Listing Status

The western bluebird does not have a Federal or State listing status.

Species Description

The western bluebird is a small thrush (6.5-7.5 inches in length, 24-31 grams in weight). Adult males have a bright, deep cobalt-blue head and upperparts with a chestnut breast and grayish underparts (Guinan *et al.* 2000). Adult females are dull in comparison with mild bluish coloration. Juveniles are grayish brown above with a rusty colored breast, both with white streaks. They have blue in the wings and tail and a white eye ring.

Habitat Affinity

The western bluebird is a bird of edge habitats. The species' habitat requirements combine the need for trees supplying lookout perches and nest holes with open country for foraging (Unitt 1984). This may include parklands that have trees with lawns or other open areas. Open coniferous, wooded riparian areas, moderately logged forests and farmlands are the preferred habitats of this species. In southern California this species breeds primarily in open oak woodlands and coniferous forests; rarely found in large agricultural areas or desert during breeding season (Garret and Dunn 1981). Disturbed areas (partially logged or burned) may be occupied by this species, as long as there is an overstory and sufficient nest sites.

Life History

Western bluebirds are medium-to short-distance partial migrant, but the least migratory of the three bluebird species (Garret and Dunn 1981). Western bluebirds are insectivorous during the warmer months and consume predominately berries during the breeding season. Wintering individuals are especially abundant in years and in areas when mistletoe and juniper berry crops are plentiful (Guinan *et al.* 2000).

This species has a socially monogamous relationship, in that single male and female form basic social breeding territory. Some females will produce offspring outside of pair bond. The pair bonds can be long (lasting 7 years or more). Pairs are formed between mid-February to mid-April, and nest building usually begins mid-March. Nests are created in cavities of trees, with preference to coniferous and deciduous species. Eggs are laid locally in late April to early May. The clutch size is 4-6 with approximately 2 broods per year. During the incubation period, which can last 2 weeks, the male western bluebird will feed the female while she incubates. The female does the brooding alone, while the male occasionally delivers food. Cooperative breeding does occur in this species with helpers being reported 7.4 percent of the time in California (Guinan *et al.* 2000). Fledglings will depart from the nest in approximately 21 days.

Status and Distribution

The breeding range of the western bluebird is from southern British Columbia to northern Baja California and the Central Volcanic Belt in Mexico (Guinan *et al.* 2000). Western bluebird is a common to very common winter visitor and will occur throughout the year in the foothills and mountain zones of San Diego County (Unitt 1984). The wintering range is predominately located within the breeding range (typically at lower elevations). Western bluebird populations in California appear to be somewhat stable with a 1.9 percent decrease between 1980 and 1994.

Threats and Conservation Needs

Habitat loss as a result of extensive logging, development, natural and artificial fires, grazing, and urbanization is likely the most important contributor to declines in western bluebird populations. Introduction of competitor species such as the house sparrow and European starling have also been a factor in the decline of the western bluebird.

Environmental Baseline

We do not have specific information on the status of this species within the Subarea Plan area. In 2012, we estimated that over half of the potential habitat targeted for conservation in MSCP had been conserved. Unitt (1984) describes the western bluebird as a “common to very common resident and winter visitor” in appropriate habitats (see above) in San Diego County. It was observed within the Project Area but not within PV2 or PV3. There are 707.3 acres of modeled foraging habitat within the Project Area, including 174.7 acres in the development footprint. Nesting and foraging modeled habitat for this species includes coastal sage scrub, disturbed coastal sage scrub, disturbed habitat, eucalyptus woodland, mulefat scrub, oak riparian forest, and non-native grassland.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will result in a net gain of 144.7 acres of modeled habitat from what was anticipated under MSCP for this Project. Direct impacts to nesting birds will be avoided through the implementation of mitigation measures B1-6 and BI-18 (Section 6.2 of the Amendment) which require 300-foot impact avoidance area around active nests. The Project would convey approximately 624 acres of modeled habitat for the western bluebird that will be added to a large block of existing conservation to the north and east where significant amounts of suitable habitat are also conserved (Dudek 2020). The Otay Ranch RMP provides for management and restoration of contiguous and/or interconnected patches of coastal sage scrub and maritime succulent scrub. Additionally, time-of-year restrictions to prevent impacts to breeding California gnatcatchers and cactus wrens, will also prevent or minimize impacts to nesting western bluebirds. Combined, these measures will maintain the function of the MSCP Preserve, providing benefits to the western bluebird.

Effects of the Action

Based on observations within the Project Area, there is a high potential for direct impacts to this species, primarily in the form of habitat destruction. A total of 46.5 acres of modeled foraging habitat in the Amendment area would be impacted by development. Indirect impacts and edge effects on suitable habitat for western bluebirds are described in Section 4.2 of the Amendment and will be minimized through the implementation of the Preserve Edge Plan.

An additional 191.2 acres of modeled habitat designated as “Take Authorized” within Planning Area 16 would be added to the Preserve; thus, there will be a net gain of 144.7 acres from what

was anticipated under MSCP for this Project. The RMP will provide for management and funding in perpetuity that will allow for preservation and enhancement of these resources.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that issuance of an amendment to the County's ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the western bluebird. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 "Species Evaluated for Coverage Under the MSCP" and will result in a net gain of 144.7 acres from what was anticipated under MSCP for this Project.
2. Indirect impacts and edge effects on suitable habitat for western bluebirds will be minimized through the implementation of the Preserve Edge Plan.
3. Western bluebirds occur across the southwest. The Amendment area encompasses a small portion of the species' overall range; thus, the Project will not affect the overall population numbers, distribution, and reproduction.

American Badger (*Taxidea taxus*)

Status of the Species

Listing status

The American badger is not listed under the Federal Endangered Species Act. It is a California Department of Fish and Wildlife species of special concern.

Species Description

Badgers have a flat body, with short legs and a triangular face with a long, pointed, tipped-up nose. It has long brown or black fur with white stripes on its cheeks and one stripe running from its nose to the back of its head. It has small ears on the side of its head and long, sharp front claws. They have muscular necks and thick, loose fur.

Habitat Affinities

American badgers are mid-sized predators occurring in low densities in grasslands and open shrublands with sandy loamy soils (Brehme *et al.* 2012). Badgers dig burrows in friable soil for cover. They frequently reuse old burrows, although some may dig a new den each night, especially in summer (Messick and Hornocker 1981). Young are born in burrows dug in relatively dry, often sandy soil, usually in areas with sparse over story cover (Zeiner *et al.* 1990).

Life History

The American badger is active throughout the year. It is both nocturnal and diurnal, with variable periods of torpor in the winter (Long 1973). The badger is non-migratory. Home ranges vary geographically and seasonally, but may range from 338 acres to 1,549 acres (Lindzey 1978). Family members may share the territory of a female (Seton 1929); however, males are generally solitary except in the breeding season (Messick and Hornocker 1981).

Badgers mate in summer and early fall, with the gestation period varying from 183-265 days. An average litter of 2-3 are born mostly in March and April (Long 1973). Although some females may breed in the first year, males do not mature sexually until the second year. Badgers have been reported to live for up to 11-15 years (Flower 1931; Jackson 1961; Messick and Hornocker 1981). When a badger is attacked, it may use vocalizations and put out an unpleasant musk.

Status and Distribution

The American badger occurs from Alberta and Saskatchewan, Canada, southward through central and western United States and into Baja California and central Mexico. The badger is an uncommon, permanent resident throughout most of California, except in the northern North coast area (Grinnell *et al.* 1937). The areas of greatest abundance are in the northeastern region and along the south central coast area with moderate populations occurring in the southeastern desert, eastern southern Sierra Nevada, and southern San Joaquin Valley. The badger is most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils (Zeiner *et al.* 1990). American badger has been detected across San Diego County in the less developed areas.

We do not know the current status of the American badger, but the species has experienced drastic declines in California within the last century.

Threats and Conservation Needs

The American badger is at a high risk of loss from western San Diego County as there are limited occurrences, the number of individuals present appears very small, and the habitat for the portion of the occurrence within the County is fragmented by urban and rural development and roads. Threats to badger include: roads with mortality due to vehicular accidents and fragmentation of habitat; loss of connectivity between occurrences; and potentially reduced food supply (ground squirrels and other fossorial species). American badgers may be susceptible to new generation rodenticides obtained indirectly through ingestion of prey. Invasive plant species may reduce suitable habitat and prey (e.g., ground squirrels). Human use of preserves can cause direct mortality, disturbance to burrows, and disruption of daily activities (Adams *et al.* 2002; Quinn 2008).

Because of the wide-ranging nature and natural low densities of American badgers, management of badgers needs to be coordinated at the landscape level. Individual preserves are not large enough to support badgers on their own. Management of these lands needs to focus on maintaining connectivity, minimizing exposure to rodenticides, and supporting a healthy prey base.

Environmental Baseline

The American badger is a very rare resident in the Subarea Plan area and is likely close to local extirpation. Large areas of the County's south segment were recently surveyed by USGS, and it was only detected at 3 preserves: Crestridge Ecological Reserve, Hollenbeck Canyon Wildlife Area, and Marron Valley. There are 1,119.5 acres of modeled habitat within the Project Area, including 527.6 within the development footprint. Modeled habitat for this species includes coastal sage scrub, chamise, disturbed chamise chaparral, disturbed coastal sage scrub, disturbed habitat, mulefat scrub, and non-native grassland. Within the Project Area, an American badger was only observed by sign (i.e., burrow) within the Otay Ranch RMP Preserve in Planning Area 16. The burrow showed distinct claw marks indicative of a badger burrow.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 "Species Evaluated for Coverage Under the MSCP" and will result in a net gain of 144.7 acres of modeled habitat from what was anticipated under MSCP for this Project.

The Project would convey approximately 576 acres of modeled habitat for the American badger that will be added to a large block of existing conservation to the north and east where significant amounts of suitable habitat are also conserved (Dudek 2020). In addition, the Project includes three wildlife crossings, which will help to ensure that this species can continue to move throughout the Preserve and associated linkages. The RMP will provide for management and funding in perpetuity that will allow for preservation and enhancement of these resources.

Effects of the Action

We anticipate that there could be direct impacts to this species, primarily in the form of habitat destruction. A total of 46.5 acres of modeled habitat in the Amendment area would be impacted by of the Project. An additional 191.2 acres of modeled habitat designated as "Take Authorized" within Planning Area 16 would be added to the Preserve, thus there will be a net gain of 144.7 acres from what was anticipated under MSCP for this Project. This new acreage adds to the block of habitat surrounding the one observed badger burrow and enhances connectivity to adjacent Preserve lands.

The badger could also be impacted by indirect effects both inside and outside of the Preserve. These generally include the indirect effects mentioned in the "General Indirect Effects" section, above. The Preserve will be adaptively managed to maintain habitat quality and the Project will implement the Preserve Edge plan to minimize indirect impacts from the adjacent development. Combined, these measures will maintain the function of the MSCP Preserve, providing benefits to the American badger.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological

opinion that issuance of an amendment to the County's ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the American badger. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 "Species Evaluated for Coverage Under the MSCP" and will result in a net gain of 144.7 acres from what was anticipated under MSCP for this Project.
2. Badgers are a wide-ranging species. The Amendment area encompasses a small portion of the species' overall range and direct impacts to individual badgers are not anticipated; therefore, the Amendment will not affect the overall population numbers, distribution, and reproduction.

Southern Mule Deer (*Odocoileus hemionus fuliginata*)

Status of the Species

Listing Status

The southern mule deer is not listed under the Federal Endangered Species Act. It is a California Department of Fish and Wildlife regulated game species.

Species Description

The southern mule deer is 1 of 6 subspecies of mule deer found in California. Southern mule deer get their name from their large, mule-like ears. They can be identified by their tails and antlers. The thin, brown tail has a black tip and is surrounded by a white rump patch. The beam of each antler divides into two equal tines, and in older bucks these may divide again.

Habitat Affinities

Southern mule deer are adapted to a variety of habitats in western San Diego County, including woodlands, shrublands, meadows, grasslands, and riparian areas. Shrub habitats and woodlands interspersed with meadows or grasslands are important for food resources, as well as cover for shade and protection from predators. Southern mule deer are mobile but nonmigratory. They prefer to move through areas where there is high vegetative cover, such as ridgetops or riparian corridors, and typically avoid areas of sparse vegetative cover, agricultural areas, urban areas, and areas with high levels of human activity. Access to dependable water sources is important for southern mule deer, especially during the summer.

Life History

Southern mule deer are generally most active at twilight, but they may be active day or night. Activity patterns may be influenced by abrupt changes or extremes in temperature, precipitation, and relative humidity. In the mountains of California, they migrate downslope in the winter and

migrate to higher elevations in the summer. Home ranges for southern mule deer in San Diego County are generally small (average 121 acres), which is 2 to 20 times smaller than home ranges estimated for other subspecies of southern mule deer elsewhere in California (Kie *et al.* 2002).

Adult does may defend small territories in late spring and early summer, when caring for newborn fawns. Bucks are usually solitary, although several bucks may form feeding herds in the spring and summer. As rut begins in August, individuals disperse and tend to avoid each other during mating activities. Southern mule deer are serially polygynous. A buck tends an estrous doe until mating is complete or the buck is displaced by another buck. The gestation period is 195-212 days. Fawns are born from early April to midsummer, varying geographically. Males and females are mature sexually at 1.5 years (Zeiner *et al.* 1990). Southern mule deer may live more than 10 years in the wild, and longer in captivity (Taylor 1956; Wallmo 1981; Anderson and Wallmo 1984).

Status and Distribution

Southern mule deer are found throughout California and presently are widespread throughout undeveloped portions of western San Diego County, although they may be declining in the county. Southern mule deer have been documented across San Diego County through various track and camera monitoring efforts, including those by the San Diego Tracking Team, Conservation Biology Institute (CBI 2002, 2003), City of Carlsbad *et al.* (2015), and others.

The southern mule deer is not threatened with extinction within its range, but the present checkerboard of private property distribution in western San Diego County and urbanization could result in local extirpation without appropriate conservation measures.

Threats and Conservation Needs

Habitat loss and fragmentation by urbanization and roads are the leading threat to southern mule deer and could result in local extirpation without appropriate conservation measures. Roads are a major barrier to movement as well as a significant source of direct mortality. A study of deer genetics in San Diego County found evidence for limited dispersal, a population structure that corresponds to major freeways, and population bottlenecks within the past 60 years (Bohanek and Mitelberg, 2014). Climatic changes, such as drought, play a key role in declines in mule deer populations (Wilson and Reeder 2005). Genetic studies of deer identified that major highways are restricting mule deer connectivity (Bohonak and Mitelberg 2014; Mitelberg and Vandergast 2016). Highways, in particular, are isolating mule deer populations in the western part of the County, where populations generally correspond to existing reserves and canyons.

Conservation of mule deer requires preservation of large blocks of habitat and maintaining connectivity between them. Measures to keep deer off of roads and to provide safe crossings will help reduce mortality and maintain genetic connectivity.

Environmental Baseline

We do not have specific information regarding the status of the southern mule deer within the Subarea Plan area. However, habitat is available and we anticipate that there are small populations in the less-populated eastern edges of the Subarea Plan area, especially near the reservoirs. Southern mule deer were observed during biological surveys, but the locations were not mapped due to the high mobility of this species. Southern mule deer were flushed from upland habitats several times during surveys and are likely to use most of the Project Area. There are 1,201.7 acres of modeled habitat within the Project Area, including 538.4 acres within the development footprint. Modeled habitat for this species includes chamise chaparral, cismontane alkali marsh, coastal sage scrub, developed, disturbed chamise chaparral, disturbed coastal sage scrub, disturbed habitat, eucalyptus woodland, mulefat scrub, oak riparian forest, non-native grassland, and southern mixed chaparral.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will result in a net gain of 144.9 acres of modeled habitat from what was anticipated under MSCP for this Project.

The Project would convey approximately 643 acres of modeled habitat for the southern mule deer that will be added to a large block of existing conservation to the north and east where significant amounts of suitable habitat are also conserved (Dudek 2020). In addition, the Project includes three wildlife crossings, which will help to ensure that this species can continue to move throughout the Preserve and associated linkages. The RMP will provide for management and funding in perpetuity that will allow for preservation and enhancement of these resources.

Effects of the Action

We anticipate that there could be direct impacts to this species, primarily in the form of habitat destruction. A total of 46.6 acres of modeled in the Amendment area would be impacted by the Project. The southern mule deer could also be impacted by indirect effects both inside and outside of the Preserve. These generally include the indirect effects mentioned in the “General Indirect Effects” section, above.

An additional 191.42 acres of modeled habitat designated as “Take Authorized” within Planning Area 16 would be added to the Preserve, thus there will be a net gain of 144.9 acres from what was anticipated under MSCP for this Project. The Preserve will be adaptively managed to maintain habitat quality and the Project will implement the Preserve Edge plan to minimize indirect impacts from the adjacent development. Combined, these measures will maintain the function of the MSCP Preserve, providing benefits to the southern mule deer.

Conclusion

After reviewing the current status of this species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service’s biological

opinion that issuance of an amendment to the County's ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the southern mule deer. We base this conclusion on the following:

1. The Project and associated amendment are consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 "Species Evaluated for Coverage Under the MSCP" and will result in a net gain of 144.9 acres from what was anticipated under MSCP for this Project.
2. Southern mule deer are a wide-ranging species. The Amendment area encompasses a small portion of the species' overall range; thus, the Amendment will not affect the overall population numbers, distribution, and reproduction.

Mountain Lion [*Puma concolor* (= *Felis concolor*)]

Status of the Species

Listing Status

The mountain lion is not listed under the Federal Endangered Species Act. The species became a California Department of Fish and Wildlife specially protected species in 1990. In 1990, California voters passed the California Wildlife Protection Act of 1990 that designated mountain lions as a "specially protected mammal" in California. It is unlawful to possess, transport, import or sell any mountain lion or part or product thereof.

Species Description

The mountain lion (also known as cougar, puma, or panther) is the largest feline in North America. Females are 79 to 132 pounds, and males are 148 to 227 pounds. They are 3.28 to 4.27 feet in length excluding the tail, which is 1.64 to 3.28 feet (Currier 1983). Individuals range in color from a tawny or rufous brown to dusky or slate gray.

Habitat Affinities

Mountain lions are habitat generalists, inhabiting habitat types such as deserts, humid coast forests, arid hillsides, scrub and oak woodlands. In California, they inhabit a variety of habitat types from deserts to humid Coast Ranges but typically inhabit remote hilly or mountainous areas in forest and shrub habitats (Dixon 1982). Within these habitat types, mountain lions commonly use terrain, such as steep canyons, rock outcroppings, and boulders, or vegetation such as dense brush and thickets to remain hidden while stalking (Hansen 1992). They are rare at higher elevations in pure stands of conifers and at lower elevations in pure stands of chamise (*Adenostoma fasciculatum*). They require open water sources, such as streams or rock pools, large foraging areas, and rocky shelters or caves for denning. A study of diurnal bedding habitat in northeast Oregon suggests that lions need both vertical and horizontal cover components, such as rocks and downed logs, to feel secure to bed (Akenson *et al.* 1996). Riparian areas provide important movement corridors, as well as cover for stalking and feeding, and areas for caching

prey (Dickson and Beier 2002). In southern California, mountain lions also commonly occur in near-urban settings, using habitat at the urban edge and within urban areas. While mountain lions tend to avoid urban habitat when possible, suitable habitat at the urban-wildland interface provides important foraging and dispersal areas given the extent of urban development in the region (Beier *et al.* 2010).

Fire plays an important role in determining the suitability of habitat for mountain lions. The best stalking cover is thick enough for mountain lions to remain hidden but sparse enough for them to see their prey (Hansen 1992). Therefore, fires that reduce canopy closure somewhat and improve habitat preferred by deer (their primary prey) will benefit mountain lion populations (Wright and Bailey 1982). In California chaparral, mountain lions have been found to be attracted to the edges of recent burns where deer tend to congregate. While fire exclusion can reduce habitat suitability for mountain lions, frequent fires would reduce the availability of cover habitat used for stalking, feeding, caching prey and dispersing, especially in riparian areas. Therefore, given the relatively short fire return interval in southern California, reducing the fire frequency may benefit mountain lions.

Life History

Females may give birth any time of year, but most births occur in the spring. Dens are located in caves, thickets, and other natural cavities. Typical litters have 2 to 3 young that do not become independent from the mother until their second year. Females become sexually mature from their second to fourth year and will produce a new litter every 2 years. The average life expectancy is 8 to 12 years (Young and Goldman 1946).

Dispersal is important for mountain lion populations because new breeding animals join a population mainly by immigration of juveniles from adjacent populations, while most of the population's own offspring emigrate (or attempt to emigrate) to other areas (Beier 1995; Sweanor *et al.* 2000; Maehr *et al.* 2002). A study of dispersal by juvenile mountain lions in the Santa Ana Mountains showed that dispersal is initiated by the mother abandoning her cub of about 18 months at the edge of her range (Beier 1995). The cub disperses to the part of urban-wildlife interface farthest from its natal range and uses temporary home ranges near this interface. Regardless of population density, almost all male offspring disperse out of their natal population (Sweanor *et al.* 2000), typically moving 53 to 62 miles and occasionally more than 124 miles (Anderson *et al.* 1992; Sweanor *et al.* 2000). Typically, 50 to 80 percent of female offspring remain in their natal population, replacing a resident female or establishing a home range that partially overlaps other breeding females (Sweanor *et al.* 2000). Dispersing individuals have been observed using corridors along well covered travel routes, underpasses, and areas with low residential densities (<1 dwelling unit/40 acres) lacking artificial lighting (Beier 1995). Emigrating juveniles are apparently strongly motivated, crossing rivers and freeways more readily than adults (Beier 1995; Sweanor *et al.* 2000; Maehr *et al.* 2002).

Mountain lions tend to avoid each other, and have not been observed to regularly defend a home range (Maser *et al.* 1981). The size of an individual mountain lion's home range can vary from season to season and year to year and is probably dependent on prey density and available stalking

and feeding cover (Currier 1983; Dickson and Beier 2002). Based on a study of radio collared mountain lions in the Santa Ana Mountains in southern California, the multiyear home range averaged 31 square miles for females and 181 square miles for males (Dickson and Beier 2002).

Studies of general activity patterns of mountain lions suggest that they have peaks of activity around sunset and sunrise (Laundré *et al.* 1996; Van Dyke *et al.* 1986). In one near-urban population, Beier *et al.* (1995) found that, when they are not feeding on a kill, mountain lions travel an average of about 3.4 miles per night and about 0.5 mile per day, and the most common nighttime activity pattern is associated with hunting.

Population density is highly dependent on environmental conditions such as prey availability and terrain features, as well as on social factors (Currier 1983; Nowak and Paradiso 1983; Van Dyke *et al.* 1986). Mountain lions are solitary animals except for brief periods of courtship and reproduction. They have no fixed den and use temporary shelters located in dense vegetation, rocky crevices, and caves (Currier 1983; Nowak and Paradiso 1983).

Mountain lions are solitary predators that prefer to stalk their prey. Mule deer make up the majority (60 to 80 percent) of their annual diet, and in California, mountain lions follow deer along migration routes (Dixon 1982; Currier 1983). They are also known to prey on rabbits and hares, porcupines, skunks, coyotes, grouse, turkey, fish, insects, grass, berries, and occasionally domestic stock (Spalding and Lesowski 1971; Russell 1978; Currier 1983).

Status and Distribution

Historically, mountain lions occurred throughout most of North America and from coast to coast in the United States. Once regarded as the most wide-ranging terrestrial mammal in the western hemisphere (Dixon 1982), the mountain lion's current distribution is much reduced. Breeding populations now occupy about one-third of their historic range in North America (including the western states and the Canadian provinces of British Columbia and Alberta) and are absent from most of their historical range in central and eastern North America, except for a small remnant population in southern Florida (Service 2011).

In California, the species was relatively uncommon in the early 20th century due to human persecution, but a moratorium on hunting was passed in 1972, and the species was given special protection under State Proposition 117 in 1990, which has led to a dramatic increase in the population. Estimates are difficult to make because mountain lions avoid people and, once grown, are generally solitary animals. The Department estimates that as of 2007, there were 4,000 to 6,000 mountain lions in California (Department 2007).

Threats and Conservation Needs

Range-wide, mountain lions are threatened by hunting, killing of individuals perceived as a threat to human life or property, vehicle strikes, habitat loss and fragmentation associated with human development, disease, and accidental poisoning (Beier *et al.* 2010). Mountain lions in California are subject to these same threats, with the exception of hunting. In highly urbanized

southern California, mountain lions are predominantly impacted by vehicle collisions and habitat loss and fragmentation associated with human development (Beier *et al.* 2010).

Vehicle strikes were the leading cause of death among radio collared mountain lions tracked in southern California from 2001 through 2013 (Vickers *et al.* 2015), and the number of documented fatalities from vehicle strikes has generally increased over the past 30 years (Vickers *et al.* 2015), likely as a result of increased human development and road construction during that time period. Roads and other dispersal barriers also increase fragmentation of suitable habitat, potentially affecting gene flow and genetic diversity of populations. In a recent genetic analysis of mountain lions in southern California (San Diego, Orange, Riverside, and San Bernardino counties), Ernest *et al.* (2014) found that mountain lions of the Santa Ana Mountains are genetically isolated and displayed signs of a recent and significant bottleneck, generally having less genetic diversity and less gene flow than those farther inland. They estimate the genetic bottleneck in the Santa Ana Mountains population occurred less than 80 years ago and state that, given the loss of connectivity between the Santa Ana Mountains and the adjacent Peninsular Range, the low genetic diversity and gene flow will continue. Therefore, maintenance of remaining corridors that provide opportunities for movement between discontinuous populations in southern California is particularly important (Ernest *et al.* 2003; Ernest *et al.* 2014).

In addition to habitat loss and fragmentation, nontarget wildlife species in and near urban areas are vulnerable to poisoning by rodenticides, especially anticoagulant rodenticides (Bartos *et al.* 2012). Secondary poisoning of nontarget animals (where a nontarget species consumes a poisoned target species) by anticoagulant rodenticides has been well documented in a wide range of birds and mammals, including mountain lions and bobcats (summarized in Riley *et al.* 2007).

Sustaining mountain lion populations will require minimizing conflicts between mountain lions and humans, protection of large blocks of unfragmented suitable habitat to provide areas for feeding, breeding, and sheltering, and maintenance of substantial habitat linkages between populations to protect against inbreeding depression and local extinction.

Environmental Baseline

There are 1,185.3 acres of modeled habitat within the proposed Project Area which includes 530.6 acres in the development footprint. Modeled habitat for this species includes chamise chaparral, disturbed chamise chaparral, coastal sage scrub, disturbed coastal sage scrub, disturbed habitat, eucalyptus woodland, mulefat scrub, oak riparian forest, non-native grassland, and southern mixed chaparral. No mountain lions were observed directly, however scat was observed within the Project Area.

Consistency with MSCP

The Project is consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will result in a net gain of 144.7 acres of modeled habitat from what was anticipated under MSCP for this Project.

The Project would convey approximately 635.7 acres of modeled habitat for the mountain lion that will be added to a large block of existing conservation to the north and east where significant amounts of suitable habitat are also conserved (Dudek 2020). In addition, the Project includes three wildlife crossings, which will help to ensure that this species can continue to move throughout the Preserve and associated linkages. The RMP will provide for management and funding in perpetuity that will allow for preservation and enhancement of these resources.

Effects of the Action

We anticipate that there could be direct impacts to this species, primarily in the form of habitat destruction. A total of 46.5 acres of modeled in the Amendment area would be impacted by the Project. The mountain lion could also be impacted by indirect effects both inside and outside of the Preserve. These generally include the indirect effects mentioned in the “General Indirect Effects” section, above.

An additional 191.2 acres of modeled habitat designated as “Take Authorized” within Planning Area 16 would be added to the Preserve, thus there will be a net gain of 144.7 acres from what was anticipated under MSCP for this Project. The Preserve will be adaptively managed to maintain habitat quality and the Project will implement the Preserve Edge plan to minimize indirect impacts from the adjacent development. Combined, these measures will maintain the function of the MSCP Preserve, providing benefits to the mountain lion.

Conclusion

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service’s biological opinion that issuance of an amendment to the County’s ITP for the Otay Ranch Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of the mountain lion. We base this conclusion on the following:

1. The Project and associated Amendment are consistent with the MSCP conservation targets and conditions of coverage included in MSCP Table 3-5 “Species Evaluated for Coverage Under the MSCP” and will result in a net gain of 144.7 acres from what was anticipated under MSCP for this Project.
2. Mountain lions are a wide-ranging species. The Amendment area encompasses a small portion of the species’ overall range and direct impacts to individual mountain lions are not anticipated; therefore, the Amendment will not affect the overall population numbers, distribution, and reproduction.

CONCLUSION

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, and based on the analyses in the Effects of the Action and Species-Specific Evaluations sections above, it is the Service’s biological opinion that issuance of an amendment to the County’s ITP for the Otay Ranch

Proctor Valley Amendment to the MSCP County of San Diego Subarea Plan is not likely to jeopardize the continued existence of San Diego goldenstar, Otay tarplant, , San Diego barrel cactus, SDFS, QCB, orangethroat whiptail, coast horned lizard, Cooper's hawk, southern California rufous-crowned sparrow, golden eagle, burrowing owl, gnatcatcher, western bluebird, American badger, southern mule deer, and mountain lion, or destroy or adversely modify the critical habitat for Otay tarplant, spreading navarretia, QCB, and gnatcatcher.

INCIDENTAL TAKE STATEMENT

INTRODUCTION

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened wildlife species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. The Service further defines "harm" to include significant habitat modification or degradation that results in death or injury to listed wildlife species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not the purpose of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the proposed protective measures and the terms and conditions of an incidental take statement and occurs as a result of the action as proposed.

The measures described below are non-discretionary, and must be undertaken by the Service so that they become binding conditions of any grant or permit issued to the County, for the exemption in section 7(o)(2) to apply. The Service has a continuing duty to regulate the activity covered by this incidental take statement. If the Service: (1) fails to assume and implement the terms and conditions, or (2) fails to require the County to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Service must track the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR § 402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

The regulations for section 7(a)(2) clarify that the Service may use surrogates to express the amount or extent of anticipated take when "exact numerical limits on the amount of anticipated incidental take may be difficult" (80 FR 26832). The implementing regulations [50 CFR § 402.14(i)(1)(i)] require that the Service meet three conditions for the use of a surrogate. To use a surrogate, the Service must:

1. Describe the causal link between the surrogate and take of the listed species;
2. Describe why it is not practical to express the amount of anticipated take or to monitor take-related impacts in terms of individuals of the listed species; and

3. Set a clear standard to determine when the proposed action has exceeded the anticipated amount or extent of the taking.

We do not anticipate any additional take for any of the covered wildlife species addressed in this opinion beyond what was already authorized under the existing ITP for the County's Subarea Plan, with the exception of SDFS and QCB which had no take authorized. As described above in the Species-Specific Evaluations sections, the Amendment will result in a net gain in occupied and/or suitable habitat for all covered species.

San Diego Fairy Shrimp

It is not possible to determine the precise number of SDFS that will be impacted by the proposed Project. The exact population size of fairy shrimp species is difficult to estimate due to the dynamic conditions associated with their habitat. The reproductive success of fairy shrimp is dependent on seasonal fluctuations in their habitat, such as presence or absence of water during specific times of the year, duration of inundation, and other environmental factors that likely include specific salinity, conductivity, dissolved solids, and pH levels. Therefore, the population of fairy shrimp in any given pool varies dramatically.

We anticipate that SDFS cysts in vernal pool habitat within the Project footprint will be taken in the form of harm by grading, excavating, and filling the basins they occupy and their watersheds. During salvage and restoration activities, cysts will be collected and translocated to restored pools. Some will survive, but some will be destroyed during this process. Some cysts will also be killed or injured during monitoring efforts. Because of the substantial variability in the number of SDFS documented in a pool over time, the number and acreage of pools occupied by SDFS is a more reliable indicator of the status of SDFS populations, and impacts to the habitat cause the incidental take of SDFS. In addition, it is impractical to quantify the number of SDFS cysts harmed or killed as a result of the Project. Therefore, the amount or extent of take is evaluated primarily based on the number and acreage of pools impacted, and the take exemptions for SDFS are defined as follows:

1. Mortality, injury, or harm to SDFS and cysts due to loss or substantial degradation of 10 basins categorized as ephemeral basins (0.098 acre) and 34 basins (0.099 acre) categorized as road ruts. Because we cannot determine the precise number of fairy shrimp and cysts occupying any basin and the number and extent of occupied basins may vary slightly over time, the amount or extent of the anticipated level of incidental take will be exceeded if more than 44 pools (0.197 acre) occupied by SDFS are destroyed or degraded by the Project.
2. Mortality, injury, or harm to SDFS and cysts during covered activities such as habitat management; enhancement and restoration activities; and monitoring. No acreage limit is set to address these types of activities because they will be recurring and in low quality habitat and are expected to be beneficial overall for the species. The amount or extent of incidental take will be tracked through annual monitoring

requirements documenting the type and number of covered activities implemented in vernal pool habitat.

3. Collection and subsequent mortality of SDFS cysts from donor pools, stored, and re-introduced into restored or enhanced pools during restoration/monitoring efforts. No acreage limit is set to address these types of activities; however, no more than 10 percent of the basin area of any donor pool shall be used for collection of inoculum. Collection of inoculum from donor pools shall be coordinated with the Service. The amount or extent of incidental take will be tracked through annual monitoring requirements documenting collection and restoration locations and the number and associated acreage of vernal pools restored annually.

Quino Checkerspot Butterfly

Quantifying the precise number of individual QCB that may be incidentally taken is not possible because the butterfly's small body size and diapause life stage make the observation or detection of mortality highly unlikely and actual numbers and losses of future population cohorts will fluctuate unpredictably in response to weather patterns and other biotic and abiotic factors across the life of the Project. Because of the difficulty in quantifying impacts to individual QCB, the amount or extent of incidental take is based on the amount of occupied QCB habitat that will be impacted. Occupied QCB habitat is defined as undeveloped open space within 1 kilometer of QCB observations, excluding orchards, agricultural fields, and closed-canopy woody vegetation. These areas generally provide the host plants, nectar plants, and/or hill-topping sites that support essential breeding, feeding, and sheltering behaviors by QCB. Thus, there is a causal link between impacts to occupied QCB habitat and incidental take of QCB. The take exemptions for QCB are provided as follows:

1. Death or injury of QCB eggs, larvae, and pupae from crushing, trampling, or burial during habitat clearing activities within up to 527 acres of QCB habitat during construction of the Project; and harm to adult QCB supported within this same 527-acre impact area. The amount or extent of the anticipated level of incidental take will be exceeded if more than 527 acres of QCB habitat is impacted during construction of the proposed Project.
2. Mortality, injury, or harm to all life stages of QCB during covered activities such as habitat management; enhancement and restoration activities; and monitoring. No acreage limit is set to address these types of activities because they will be recurring and minimized through implementation of best management practices and are expected to be beneficial overall for the species. The amount or extent of incidental take will be tracked through annual monitoring requirements documenting the type and number of covered activities implemented in QCB habitat.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of take is not likely to result in jeopardy to the SDFS or QCB.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

The Amendment and its associated documents identify anticipated impacts to covered species likely to result from the Project and the specific measures that are necessary and appropriate to minimize those impacts. All of the conservation, monitoring/management, and avoidance and minimization measures described in the Amendment, the MSCP, and the County's Subarea Plan, together with the special terms and conditions identified in the ITP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR 402.14(i). Additionally, the Service must comply with the following Term and Condition:

1. The Service shall provide technical assistance to the Permittee throughout the term of the Permit.

The terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and 7(o)(2) to apply. If the County and/or GDCI fails to adhere to these terms and conditions, protective coverage of the section 10(a)(1)(B) permit and 7(o)(2) may lapse. The amount or extent of incidental take anticipated under the County's Subarea Plan and Amendment, associated reporting requirements, and provision for disposition of dead or injured animals are described in the ITP.

REPORTING REQUIREMENTS

An annual report will be prepared and submitted to the CFWO by February 15 of each calendar year (or other date agreed to by the County and the Wildlife Agencies).

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. No conservation recommendations have been identified.

REINITIATION NOTICE

This concludes formal consultation and conference on the proposed issuance of an Amendment to the ITP for the MSCP County of San Diego Subarea Plan for Otay Ranch Village 14 and Planning Areas 16 and 19. As provided in 50 CFR 402.16, reinitiation of consultation is required and will be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and:

1. If the amount or extent of taking specified in the incidental take statement is exceeded;
2. If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;

3. If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this biological opinion; or
4. If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions concerning this consultation, please contact [Susan Wynn](#)¹⁵ of the CFWO, at 760-431-9440.

¹⁵ susan_wynn@fws.gov

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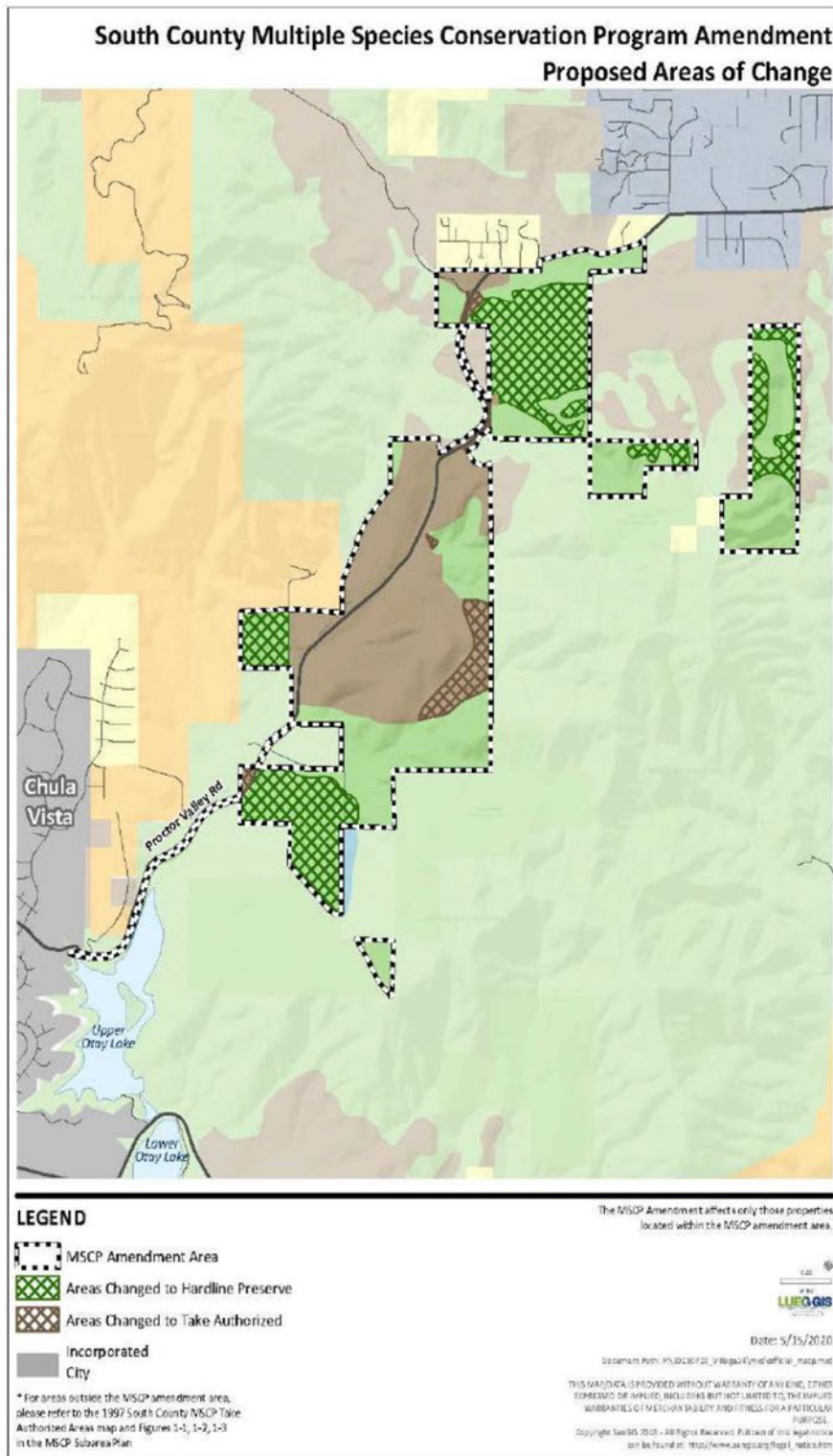


Figure 1. MSCP Amendment.

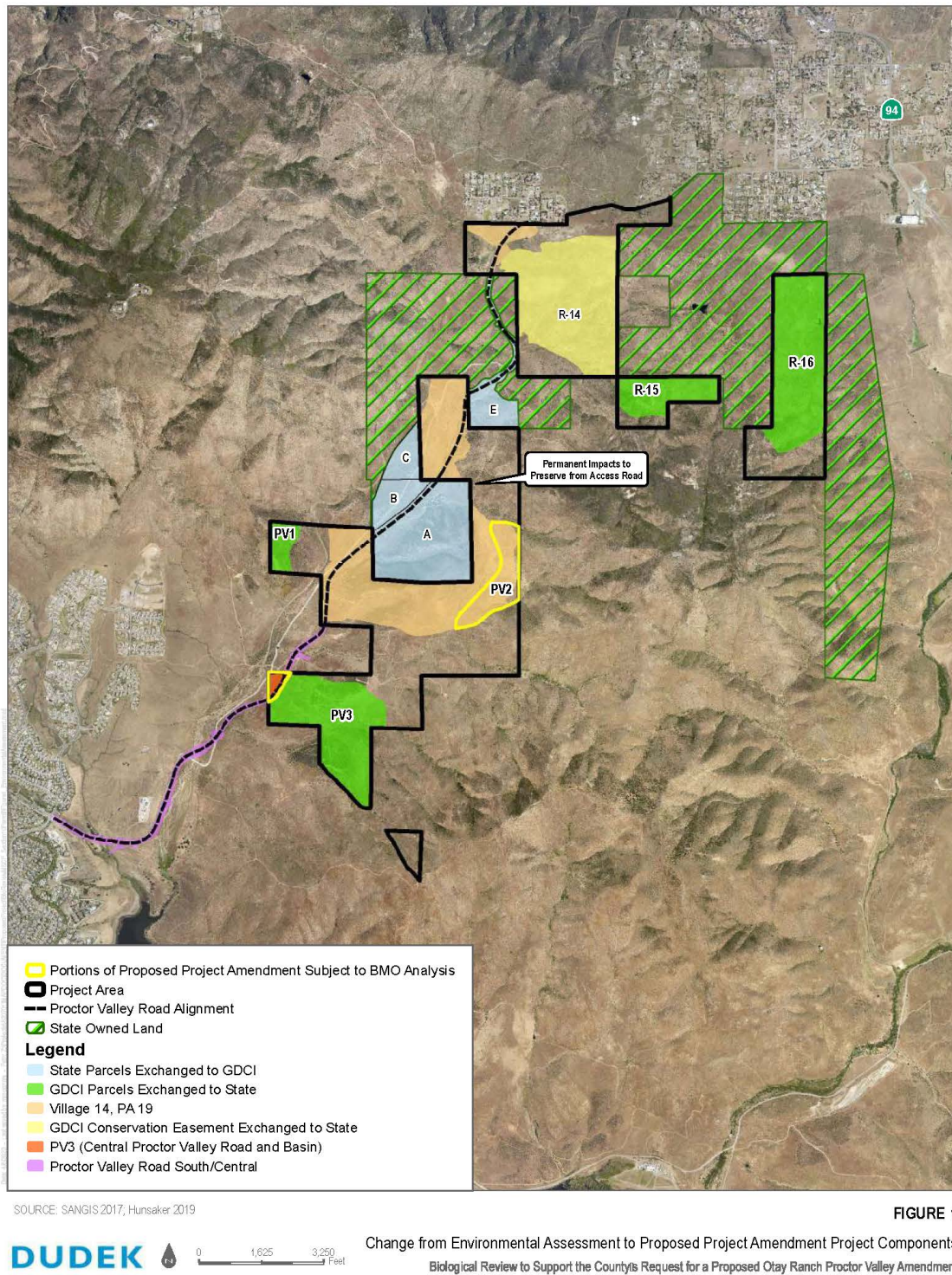


Figure 2. Proposed project – showing land disposal/exchange.

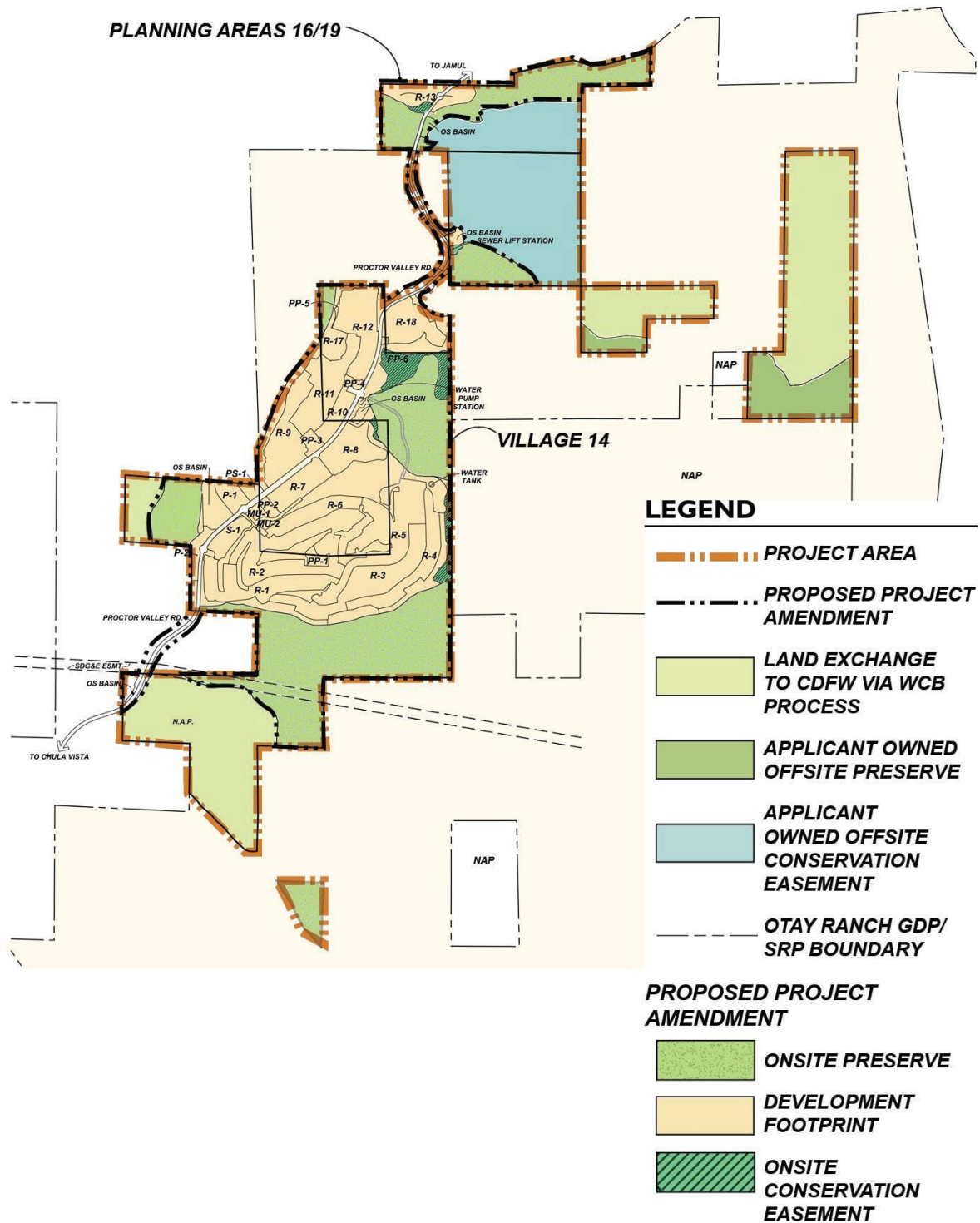


Figure 3. Proposed Project – showing development and conserved lands.

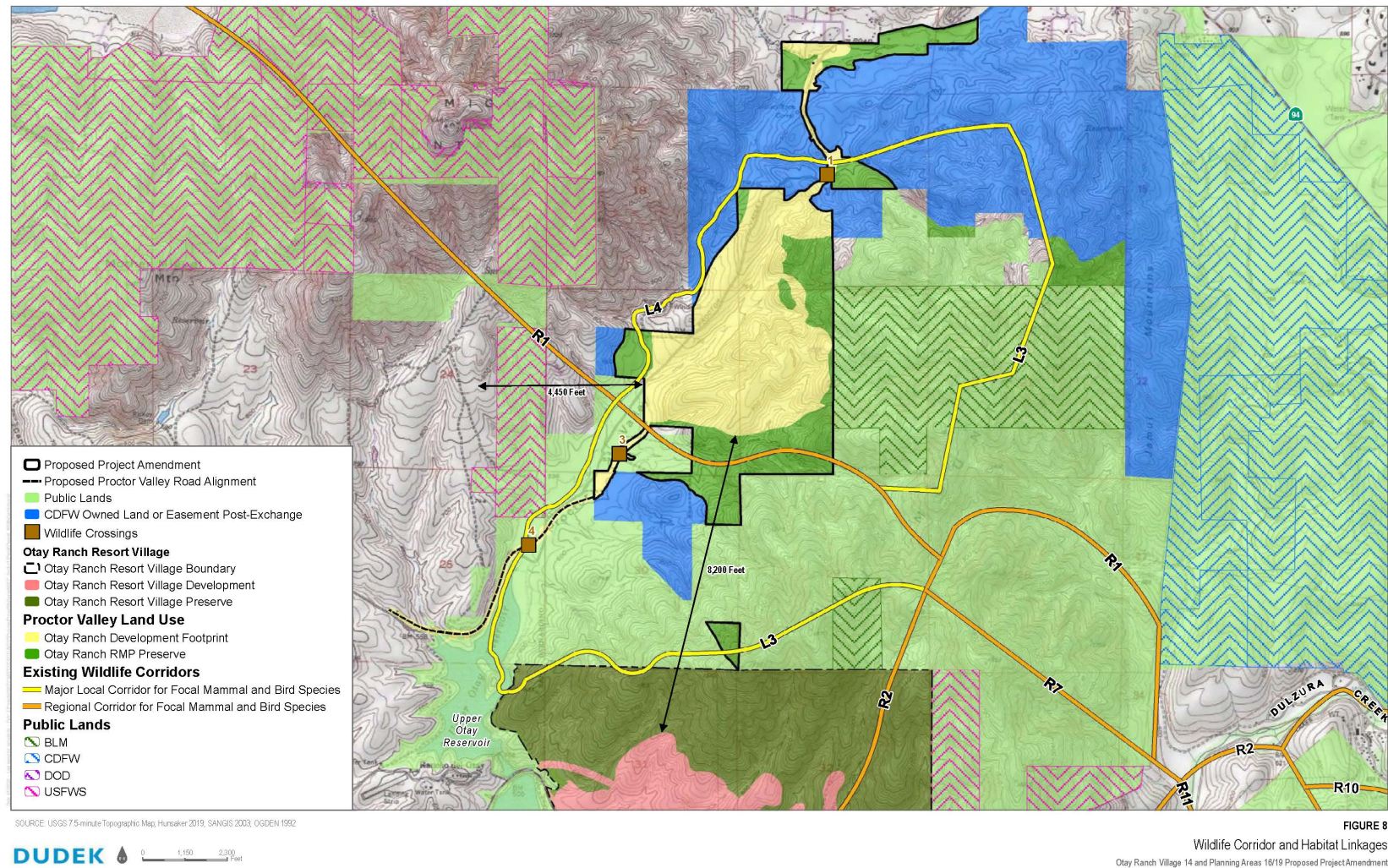


Figure 4. Project Area and surrounding conserved lands.

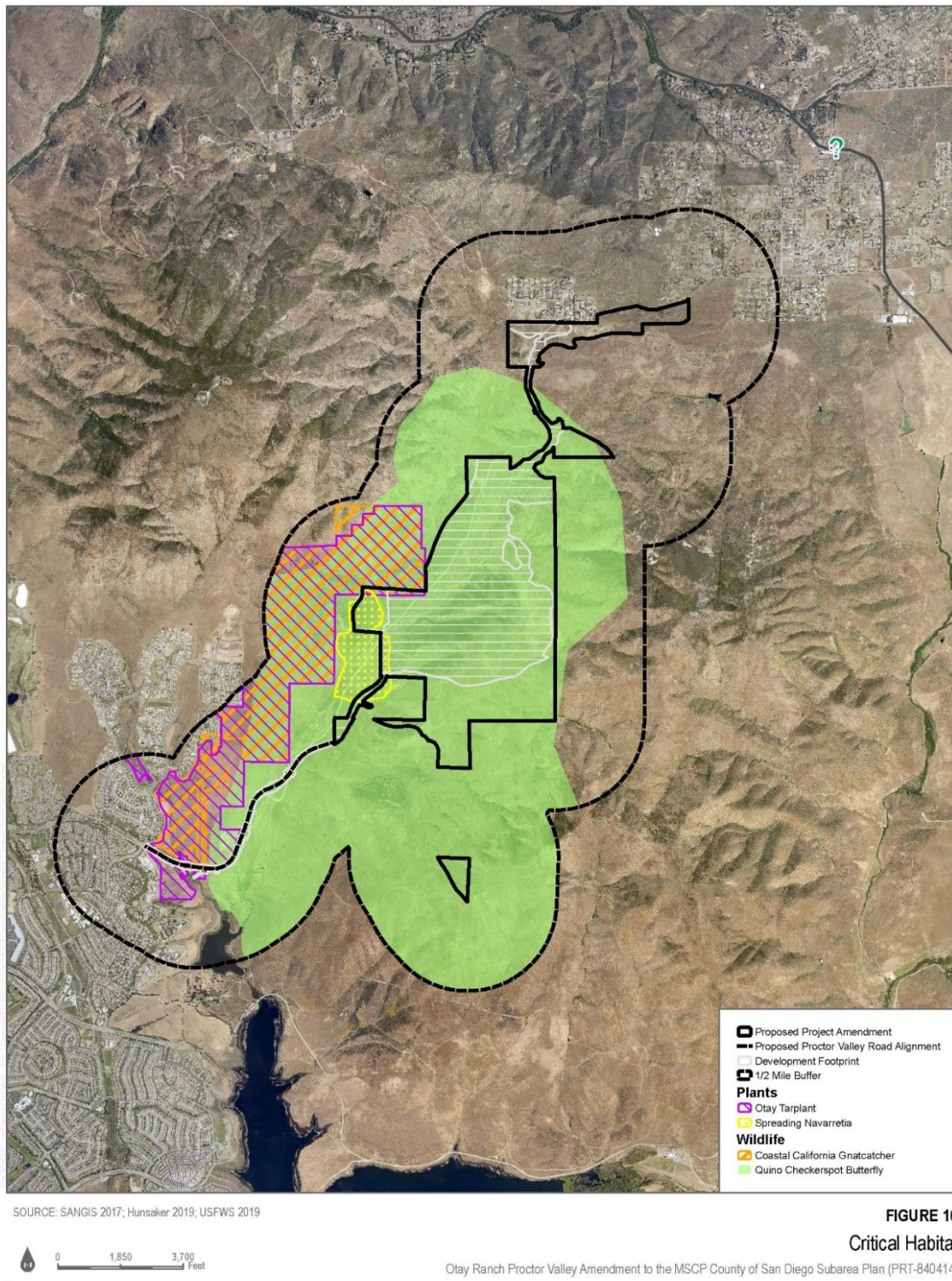


Figure 5. Critical Habitat within the Project Area.

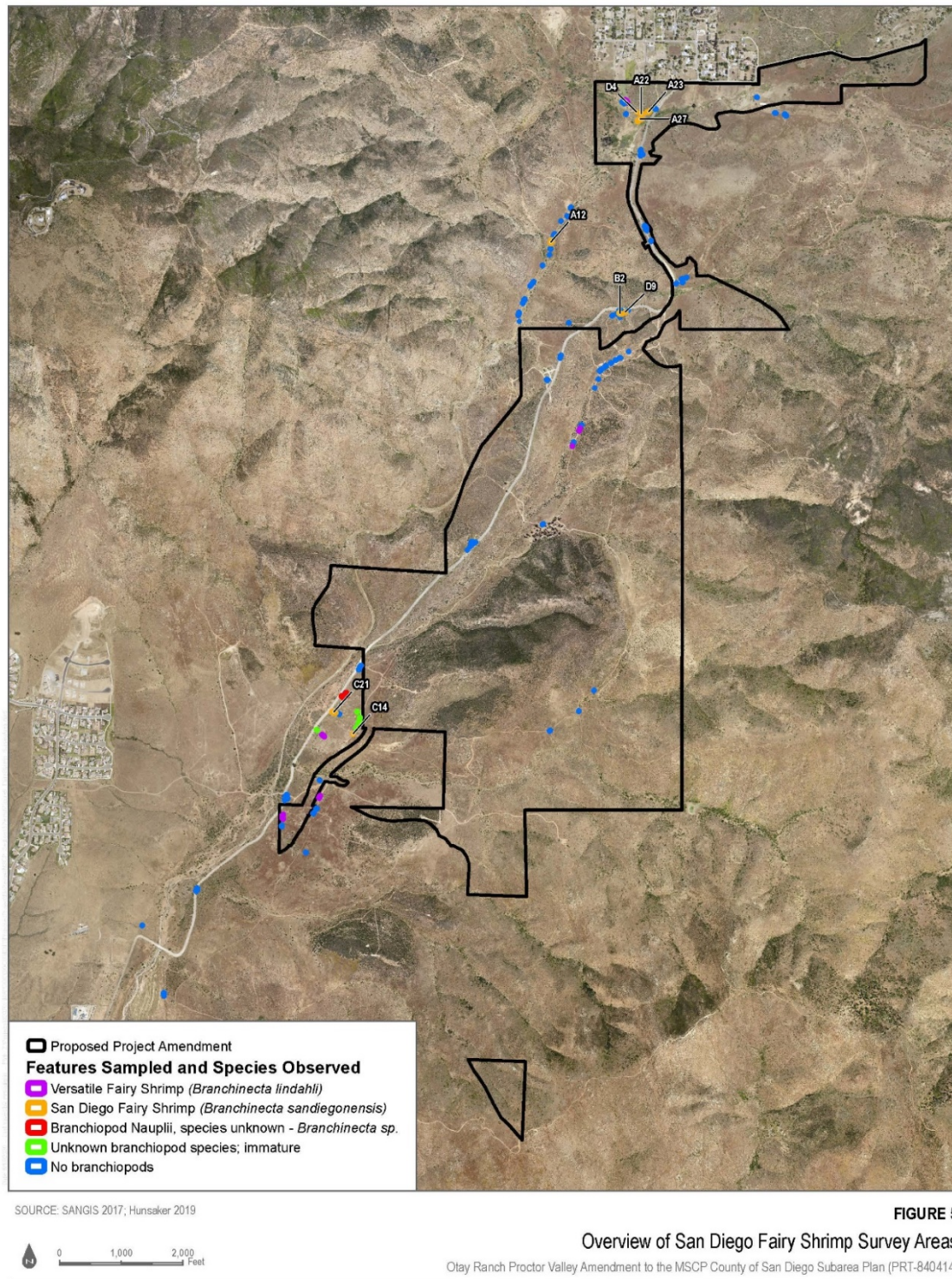


Figure 6. Ponded areas within the Project Area that could support SDFS.

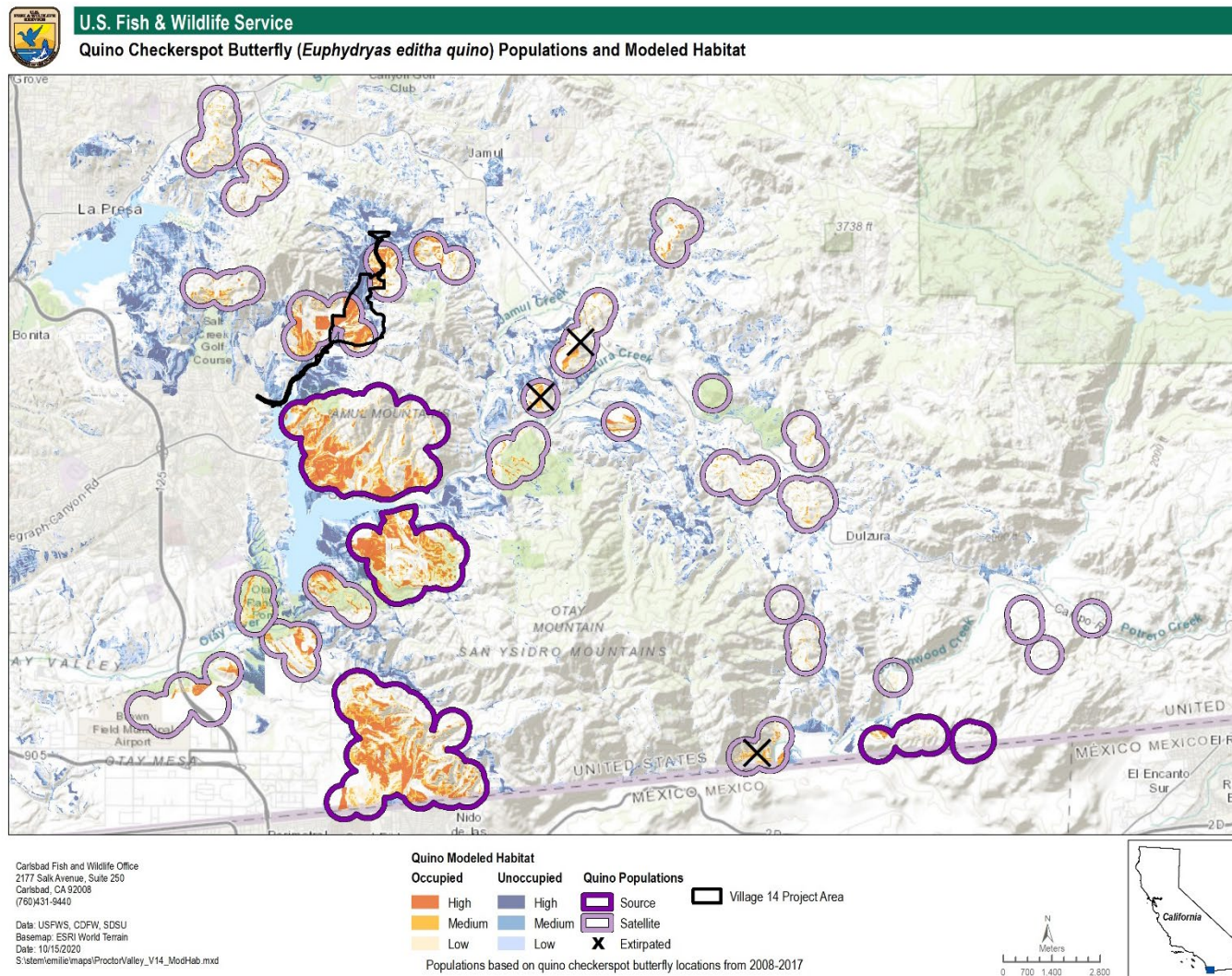


Figure 7. QCB Metapopulation function within the Otay Occurrence Complex.

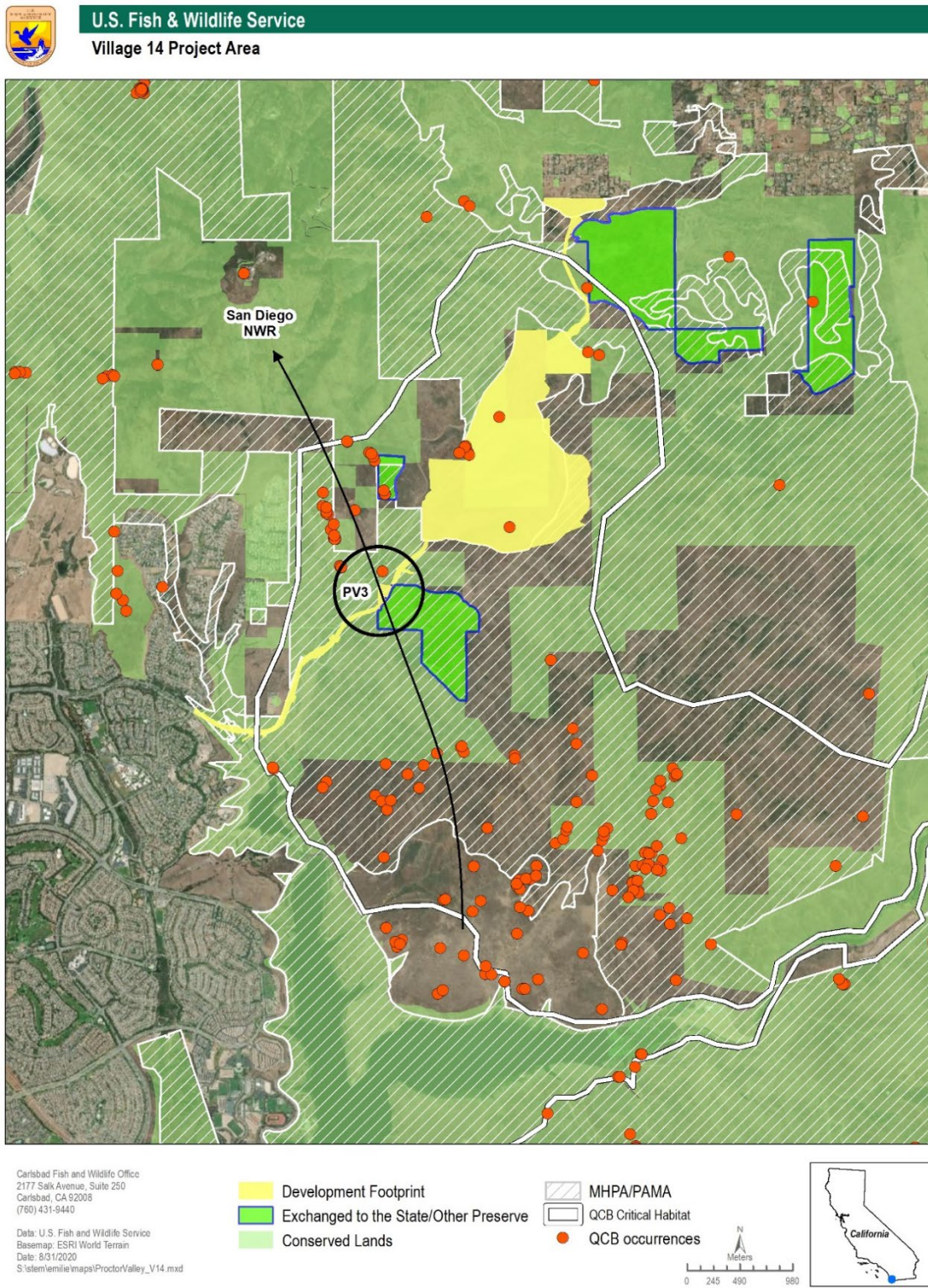


Figure 8. QCB Distribution and connectivity in the vicinity of the Project Area.

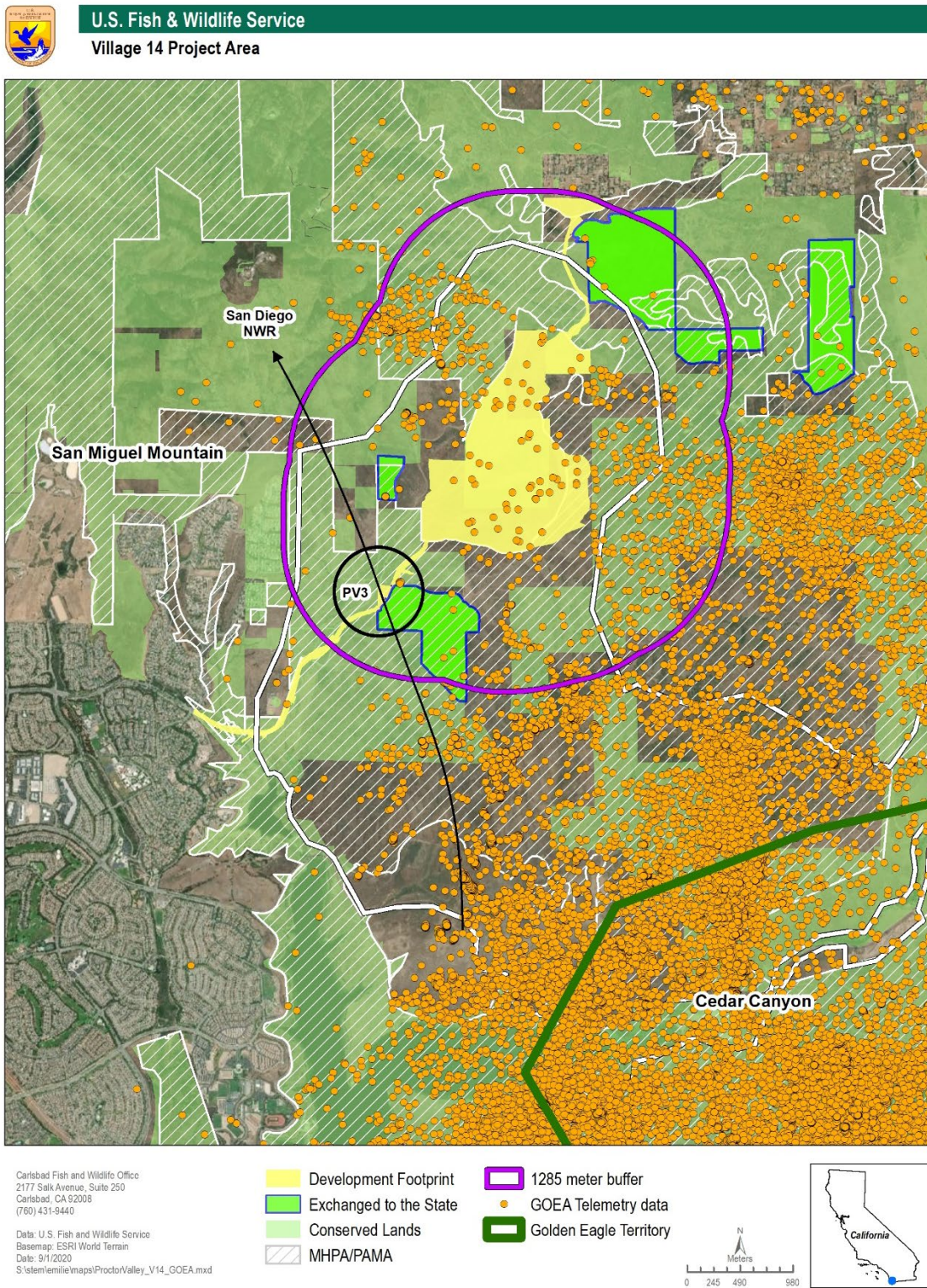
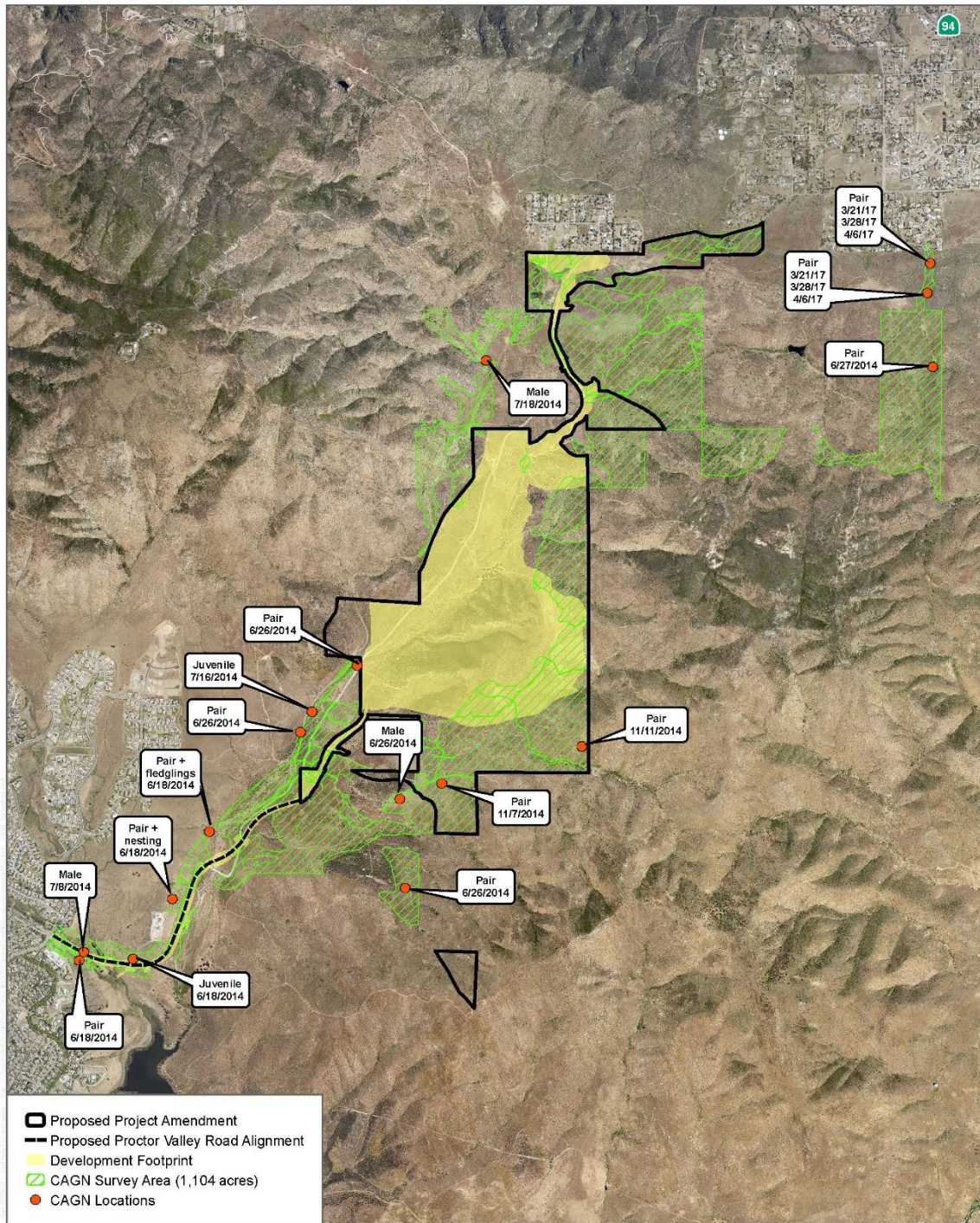


Figure 11. Golden eagle use and potential avoidance area from urban edge.



SOURCE: SANGIS 2017; Hunsaker 2019

FIGURE 10

California Gnatcatcher Survey Area

DUDEK

Biological Assessment for the Proposed Project Amendment - Otay Ranch Village 14 and Planning Areas 16/19

Figure 82. Coastal California gnatcatcher observations.